Better Homes and Gardens®

WOOD®

THE MAGAZINE FOR HOME WOODWORKERS

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Display until April 11

Send your best **SHOP TIPS** Tools, prizes galore! Page 14

STACK 'EM UP LAMINATED BOWLS
A dynamite technique that produces fantastic results for woodturners

TOOL BUYER'S BONUS

SCROLLSAWS PRICED UNDER $150
Are they a good value?

WE TEST STATIONARY BELT SANDERS
Nitty-gritty on 14 tools

TRY THESE PROJECTS
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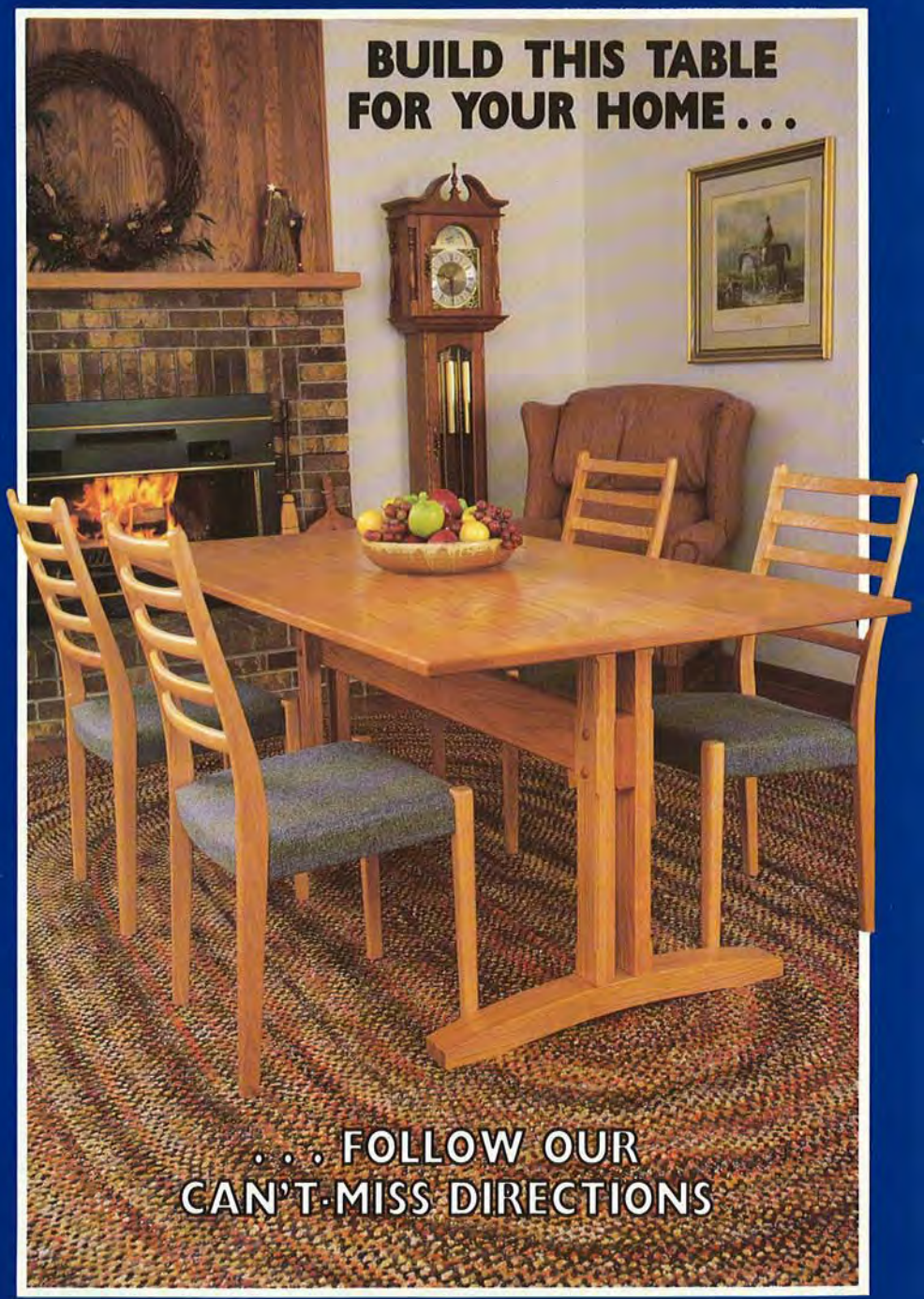
Southwest-style bowl
Fine-finish scraper
Turned birdhouse
Cowboy boot bookends



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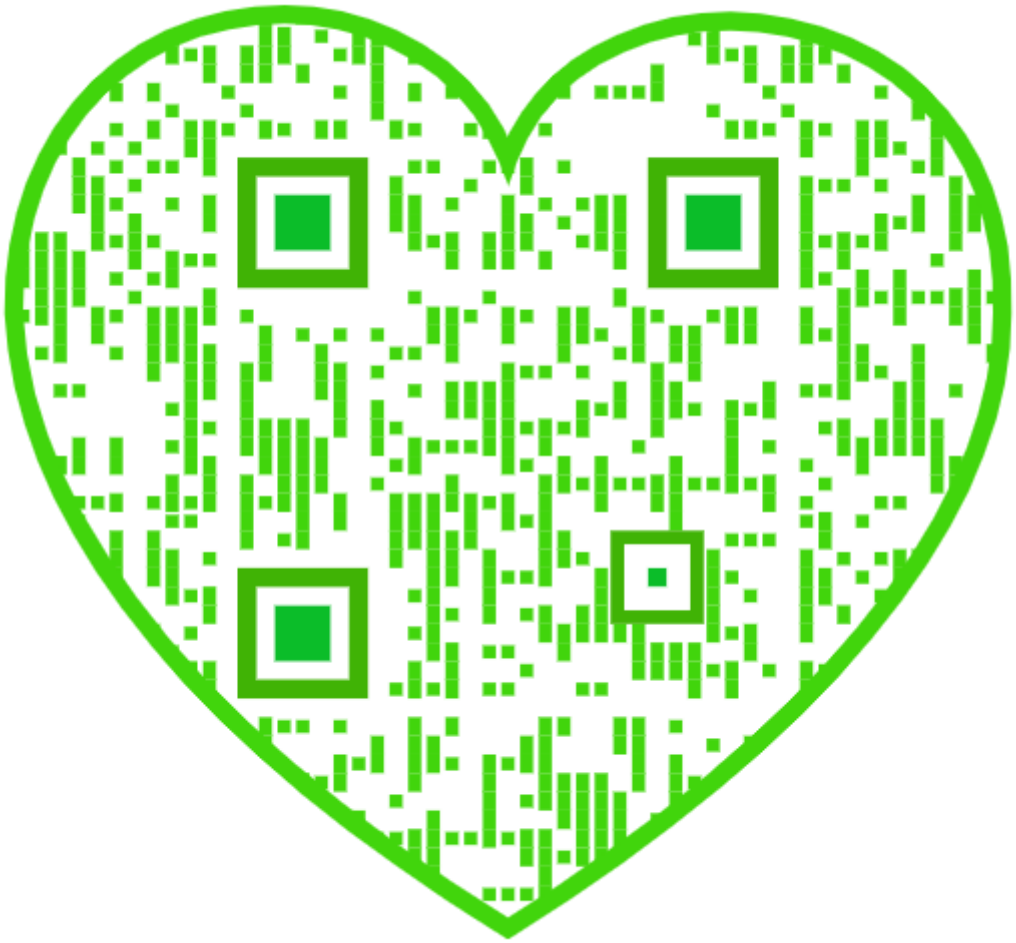

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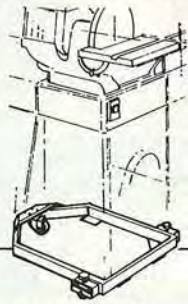

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THE WORLD'S #1 WOODWORKING PUBLICATION

This issue's cover wood grain: red oak

APRIL 1989 ISSUE NO. 28

WOOD PROFILE

DOUGLAS FIR: THE GLOBE-TROTTING HE-MAN OF AMERICAN SOFTWOODS 25

Early loggers felled Douglas fir as tall as 400' in the Pacific Northwest. Even today, this sturdy giant makes its mark in the lumber industry.

SHOP-TESTED TECHNIQUES

STACK-LAMINATED BOWLS 26

You'll pile up compliments when you try our recipe for one of the most creative turning projects imaginable. Our staff teamed up with a respected stack-laminated turner to produce this article.

NOW YOU CAN BUILD IT

A SOUTHWEST-INSPIRED BOWL 32

Once you get the feel of stack-bowl techniques, put your talents to good use on a 12"-diameter bowl that features two traditional Navaho patterns.

IN SEARCH OF THE PERFECT FINISH

COAXING A GLOW FROM WOOD 36

Find out how a furniture-design professor cooks up a hard-to-beat finish by blending a marine coating and beeswax.

SCROLLSAWS UNDER $150:

A GOOD DEAL FOR THE MONEY? 38

Low prices on Taiwan-manufactured scrollsaws have created a lot of interest in this benchtop machine. Read what we found about them in our shop.

TALES OF THE TIMBER TRADE 40

Deep in the jungles and rain forests, wood buyers still encounter an occasional spine-chilling adventure while searching out exotic imports.

ALL DECKED OUT WITH FILIGREE

PLANT STAND 42

Blending laser technology and a traditional pattern, we've designed an accessory that deserves a place in your home. Check this out; you'll like what you see.

TRESTLE TABLE 48

Trestle tables have been around for centuries, but you'll appreciate some updated solutions to solving assembly problems for our Shaker version. How-to photos make the difference.

A SUREFIRE TECHNIQUE FOR PLEASING BOWL DESIGN 54

Don't leave form to chance! You can solve some vexing bowl-design problems by applying our easy-to-understand advice.

TOOL BUYMANSHIP

STATIONARY BELT SANDERS 58

We examine the true grit of 14 models and point out some important differences you should consider before buying one for your shop.

CRAFTSMANSHIP CLOSE-UP

CREOLE CRAFTSMANSHIP 64

Creole isn't just a heritage or a cooking style in George Olivier's life. Our featured woodworker toils at re-creating "Big House" plantation furniture made from sturdy, distinctive cypress that surrounds his Louisiana city.

HOMEMADE TOOL

FINE-FINISH SCRAPER 68

Jim Boelling, our project builder, shares the design of a favorite tool he relies on to smooth his best work.

ACORNY KIND OF BIRDHOUSE 70

You'll be whistling happy tunes when a pair of busy wrens occupies this nutty new home you can turn on the lathe.

CARVE A PAIR OF COWBOY BOOTS 72

Don't be surprised if Arizona carver Dave Rushlo looks you right in your boots. The pattern he shares with *WOOD* magazine readers makes a handsome pair of bookends.

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REBATE! REBATE! REBATE!

DELTA

13" RC-33 Planer
$1049 22-651

37-150 6" jointer w/stand 879*
34-429 10" tilting arbor saw 889*
31-730 6" belt/12 disc 929*
34-995 3 ph. stock feeder 599*
34-985 1 ph. stock feeder 449*
* Price includes rebate

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34-782 3hp unisaww/unifence 1429
43-375 3hp H.D. shaper 1449
33-890 12" radial saw 1149
31-380 4"X132" edge sander 1299
37-350 8" jointer w/stand 1269
34-897 DELTA unifence 299

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34-444 10" contr. saw compl. 599
33-990 10" radial arm saw 599
33-150 8-1/4" Sawbuck 499
34-080 10" miter saw 179
50-179 3/4hp dust coll. w/drum 349
* Price includes rebate.

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40-150 15" bench scroll saw 139
23-700 wet/dry grinder 139
28-160 10" 3-wheel band saw 139
31-460 4" belt/6" disc sander 139
31-050 1X30 belt sander 69

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$159 555

352 3X21 sander w/bag 119
360 3X24 sander w/bag 179
362 4X24 sander w/bag 189
330 Speed Bloc finish sander 59
505 1/2 sheet finish sander 109
503 3X24 wormdrive w/bag 335

Saw Boss
$95 345

9647 Tiger Cub w/ case 119
9629 VS Tiger saw w/case 135
7548 VS top-handle jig saw 119
9118 Porta-Plane w/ct cutter 189
7511 3/8" VSR drill 109

1-1/2 HP Router
$119 690

691 1-1/2hp D-handle router 129
518 3hp 5-speed router 319
696 router shaper table 109
9850 12 V. cordless drill kit 129
5116 Omni-Jig 279

RYOBI

Portable Planer
$338 AP-10

RA200 8-1/4" port. radial saw 238
TS251U 10"mitersaw w/accykit 199
RE600 3hp VS plunge router 199
R500 2-1/4hp plunge router 159
BE321 3X21VS belt sander 119
JP-155 6-1/8" jointer planer 329

Mill-Route

Mill-Route
$279 MR1/MR-R1

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Jointing System with Case
$154 JS100

FB-100 16pc Forstner bit set 159
90-100 15pc router bit set 159
94-100 5pc router cabinet set 159
91-100 13pc1/2" router bit set 199
EC-900 5pc shaper cabinet set 279

Elu

2-1/4 HP V.S. Plunge Router
$269 3338

3304 1hp VS plunge router 199
3375 3-1/8" universal planer 209
3380 jointer /spliner 349

LEIGH

24" Dovetail Jig
$279 D1258-24R

BIESEMEYER

50" Commercial
$290 50-B

52B 52" homeshop fence 229
40B 40" homeshop fence 209
28B 28" homeshop fence 199

Milwaukee

V.S. Sawzall with Case
$129 6507

6368 7-1/4 saw w/case,ct blade 129
0234-1 1/2 VSR Magnum drill 109
0222-1 3/8 VSR 3.5 A drill 99
5397-1 3/8 hammer drill kit 139
6753-1 VSR drywall driver 89

BOSCH

4X24 V.S. Belt Sander
$189 1273DVS

1273D 4X24 sander w/bag 179
1272D 3X24 sander w/bag 169
3270D 3X21 sander w/bag 139

V.S. Top Handle Jig Saw
$124 1581VS

1582VS barrel grip jig saw 119
1654 7-1/4" saw w/c.t. blade 99
3258 3-1/4" power plane 139

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4301BV	orbital jig saw	$139
5007NB	7¼" circular saw	$109
6000LR	⅜" clutch drill	$119
6012HDW	¾" cordless clutch drill	$109
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9924DB	3x24 belt sander	$149
9401	4x24 belt sander	$169
9820Z	blade sharpener	$169

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B7100	3 x 24 Dustless Belt Sander	$121
B7200A	4 x 24 Dustless Belt Sander	$148
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EC-900	5 Pc. Shaper Cabinet Set	$264
EC-209-213	Raised Panel Cutters	$85
EC-260	¾" Cabinet Door Set	$157
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LM72M	10", 24T, Rip Blade	$38
LU73M	10", 60T, ATB Cutoff	$38
LU84M	10", 50T, Combination Set of Three Above	$38 $107
LU82M	10", 60T, Triple Chip	$42
LU85M	10", 80T, Super Blade	$59
DS306	6" Dado	$99
DS308	8" Dado	$109
JS100	Plate Joiner	$169
JS020	1000 Biscuits	$29
F1100	Spare Cutter	$ 34

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2020	8" Jointer	$775

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C15FBP	15" Miter Saw	$409
C101FB	10" Miter Saw	$279
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690	1½HP Router	$124
310	Laminate Trimmer	$124
312	Offset Laminate Trimmer	$133
319	Tilt-Base Laminate Trimmer	$138
330	Speed-Block Sander	$ 64
352	3 x 21 Dustless Belt Sander	$130
360	3 x 24 Dustless Belt Sander	$185
362	4 x 24 Dustless Belt Sander	$198
555	Plate Joiner	$169
345	Saw Boss	Call

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JTS-10	10" Contractors Saw	$439
CTAS-10	10" T/A Table Saw with 50" Biesemeyer Fence	$1275
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Super 15" Scroll Saw

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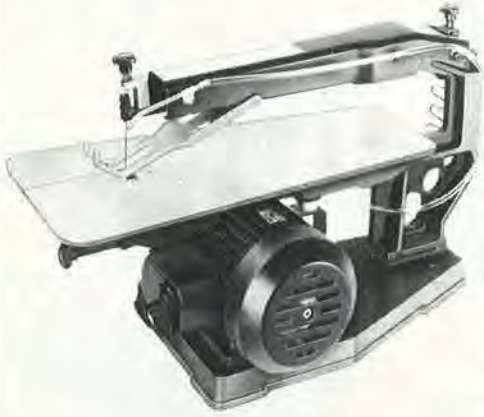

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- **Blades** - uses 5" standard & pinend
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12 Blade Assortment	**$ 3.50 value**
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FREE ... $37.00 VALUE

Saw & Accessories Price List

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Dust Blower	**15.00**	**(*)**
Saw Stand - 37" high	39.00	(4.00)
4 dz blades (2dz pin, 2dz #9)	14.00	(*)
2 dz Spiral blades (size #2)..	10.00	(*)

(*) No freight charge if ordered with Saw; $3 for any combination of these accessories ordered separately

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Portable with "Power Feed" • Shipped assembled • Retail value over $600.00

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SPECIFICATIONS:

- **Knives**.... 2ea, 12-1/2" wide, HSS
- **Motor** - 14 Amp, 115V, 8000 RPM
- **Auto Feed rate** ..... 26.2 FPM
- **Cutting speed** ..... 16000 Cuts/min
- **Thickness of stock** ..... 3/16" to 6"
- **Size** ..... 15-1/2"H X 22"W X 21" Bed
- **Max Depth of cut** ..... 3/16"
- **Machine Weight** ..... 65 Lbs

Planer & Accessories Price List

	PRICE	(UPS)
Super 125 Planer.....	**$349.95**	**(15.00)**
Extra Set of 2 Knives	**25.00**	**(*)**
Dust Chute for vacuum	24.00	(4.00)
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WHY DO WE SHOP-TEST OUR TECHNIQUES?

BECAUSE THE PROOF IS IN THE PUDDING!

I have to chuckle every time I think about the Fisher Nut Company's television commercial of a few years back—the one in which the highly proper chairman of the board announces at a board meeting: "At Fisher, we take the nut very seriously."

We at *WOOD*® magazine approach our task much the same way. And nowhere does our intent show more clearly than in the way we develop our shop-tested techniques articles. Take, for example, this issue's piece on stack-laminated bowls, which begins on page 26. Because we first learned about this technique from *WOOD* magazine reader Bill Lovelace, I asked Bill Krier, our products/techniques editor, to fly to Phoenix, Arizona. His assignment: To learn firsthand about how the process works.

Our team met for hours before giving its approval on the stave-bowl article. From left are: Jim Boelling, Bill Krier, and Jim Downing.

After spending two solid days with Bill Lovelace in his Phoenix workshop, Bill returned to Des Moines with all kinds of bowl scraps and more than 100 photos depicting every conceivable step of the process from every imaginable angle.

With all this raw data in hand, our techniques team (shown *above*) huddled in the conference room to share thoughts about the technique and to plot their testing strategy. Then it was off to our shop, where each and every technique we feature in *WOOD* magazine must prove itself workable.

One week later, after cutting and assembling lord only knows how many stacked bowls, our trio of technique testers emerged with some good news. "Yes, Bill Lovelace's techniques work, and we've even found a few ways to make the process less time-consuming for our readers." For example, our team developed a clamping platform and a system of clamping that speed the glue-up of segments, a guide-pin system that allows you to glue several bowl layers together at one time, and several other improvements you can read about in the article.

My point is this: At *WOOD* magazine, we're not content to just repackage old information that you've read about time and time again. We actively search out new and improved ways of doing things—and put conventional woodworking wisdom to the test—in our on-site shop. Then and only then does a technique receive the Shop-Tested stamp of approval you see here.

Larry Clayton

BOSCH
Woodworking

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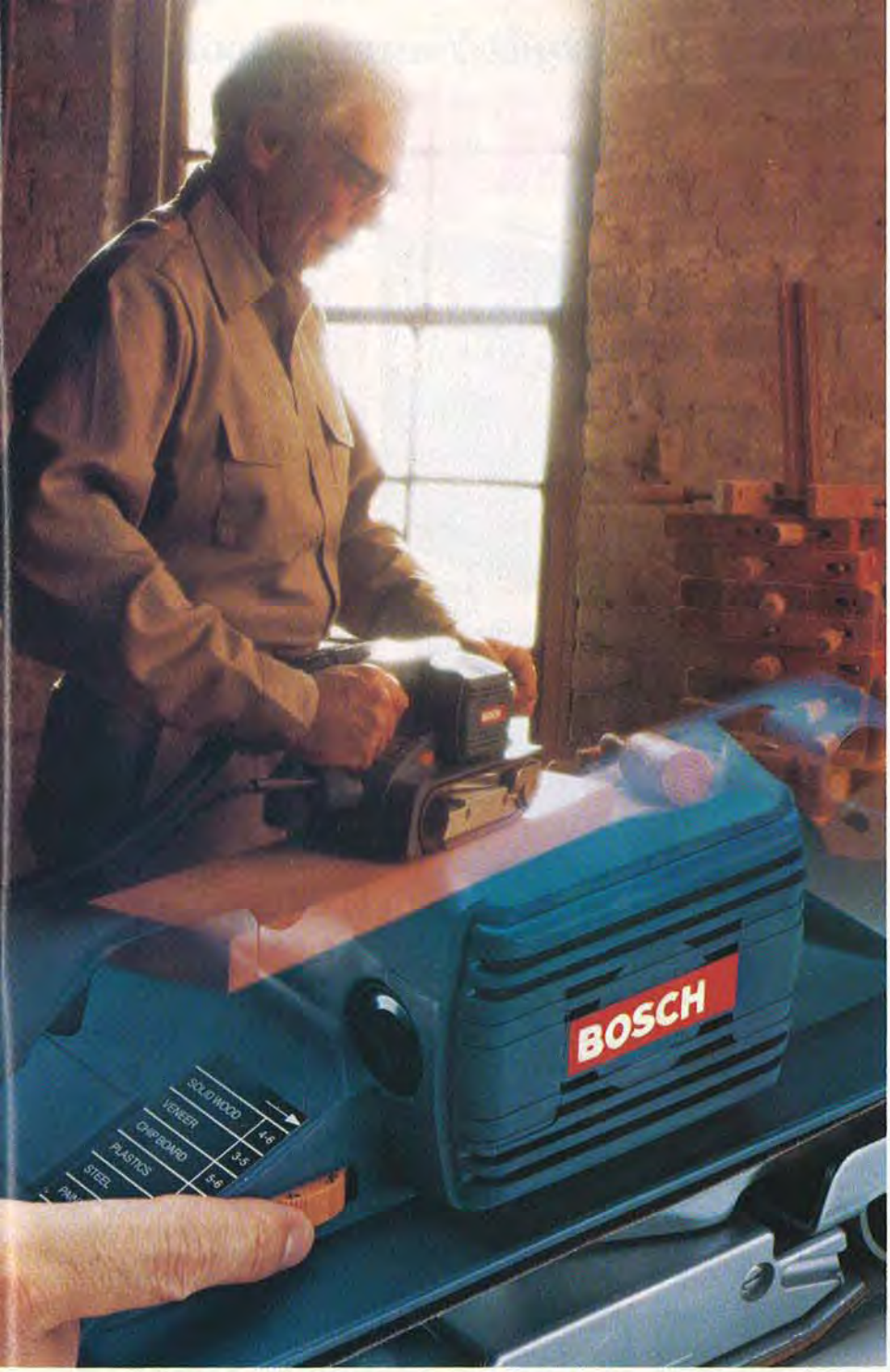

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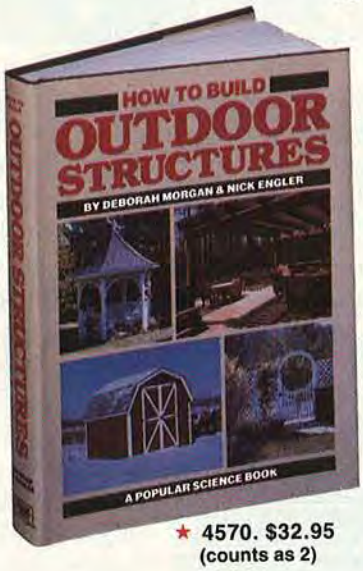

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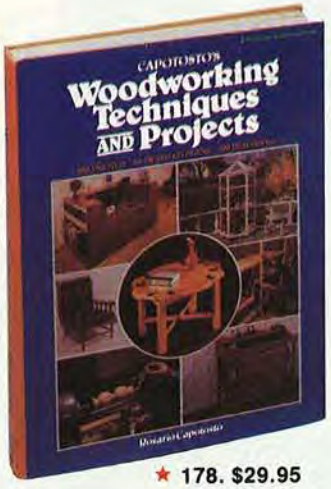

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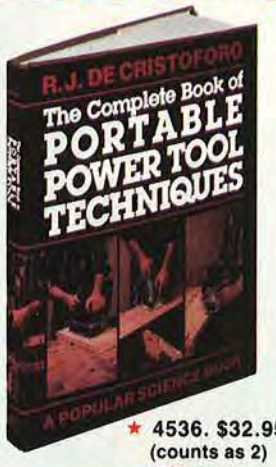

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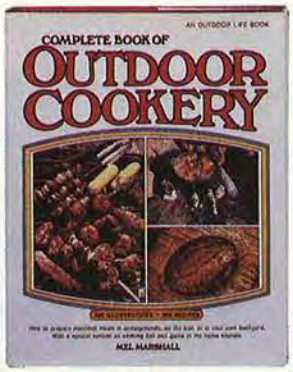

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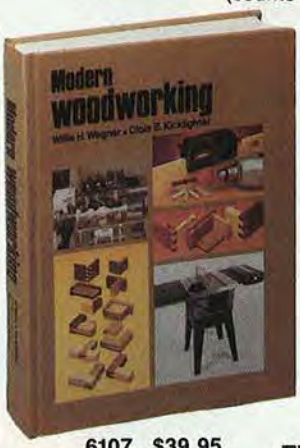

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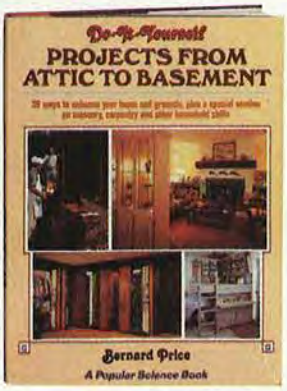

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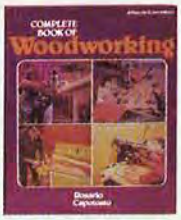

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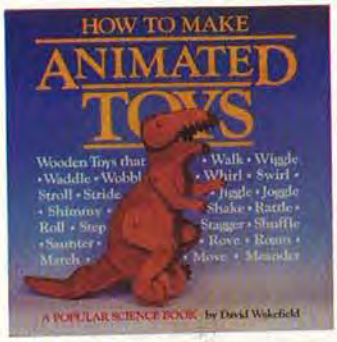

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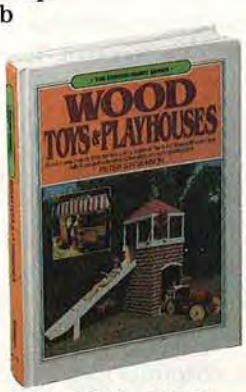

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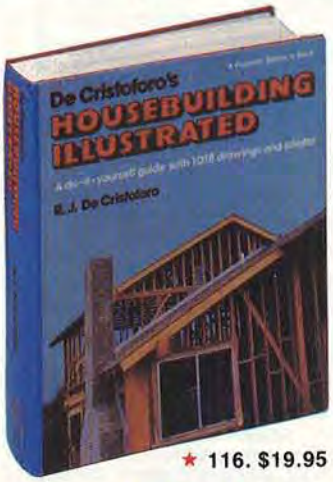

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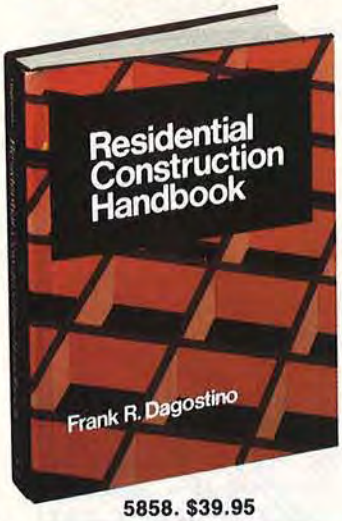

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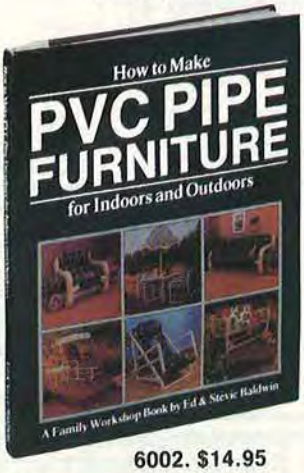

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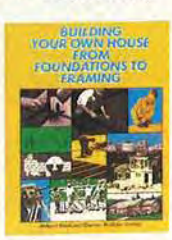

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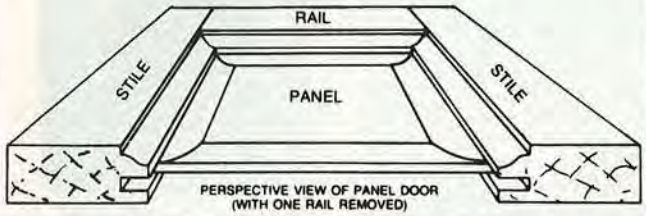

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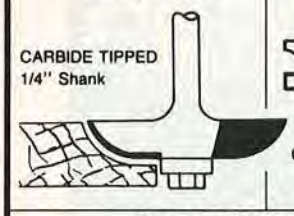

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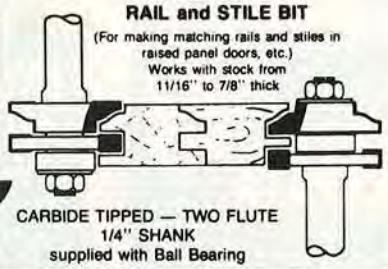

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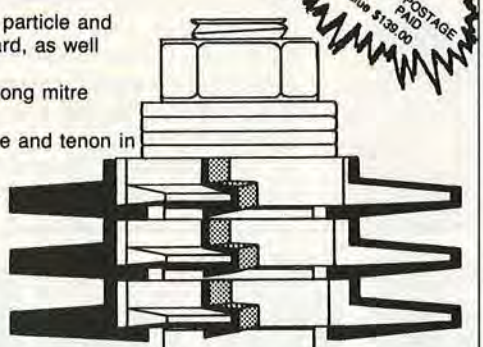

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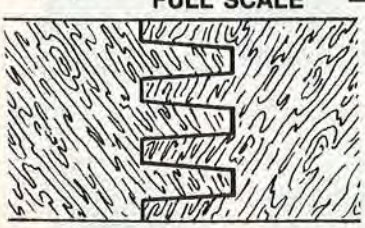
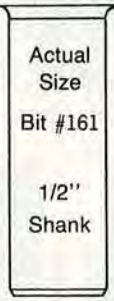


Three 3-wing carbide cutters on arbor



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TALKING BACK

Print this article

We welcome comments, criticisms, suggestions, and even an occasional compliment. The volume of mail we receive makes it impossible to answer every letter, but we promise to do our best. Send your correspondence to: Letters Editor, Better Homes and Gardens® *WOOD*® Magazine, Locust at 17th, Des Moines, IA 50336.

ALL YOU NEED TO KNOW ABOUT STAVES

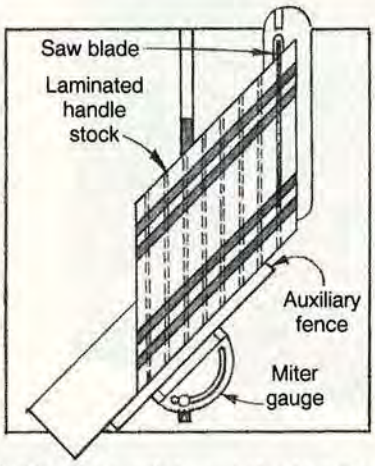
The stave-angles chart in your stave-bowl construction article in the June 1988 issue fascinated me. Readers might be interested in knowing the equation for the basics of this table:

Cut angle° = 180° ÷ number of staves

This formula might be helpful in other cylindrical projects. One that comes to mind is building an old-fashioned wooden bucket.

—Robert A. Miller, Altamonte Springs, Fla.

A BETTER LETTER OPENER



In your February 1988 issue, you published an article about making a laminated letter opener. Since reading the article, I have made approximately a dozen of these openers. Thanks to your fine directions, they all came out beautifully.

However, I found it difficult to safely cut the last 2" or 3" of the ½" laminated part. To solve this problem, I glued a piece of white pine to the end of the lamination. Now I can cut at a 45° angle—even down to the last ½".

—J.R. DeHoney, Lansing, Mich.

NEW SPINS ON CAROUSEL PROJECT

I originally ordered *WOOD* magazine for my husband, but I enjoy it as much or more. I made the animal carousel in the October issue. The beautiful wood grain aside, I painted one in nursery colors for a shower gift. Since then, I've made 11 other carousels for my friends.

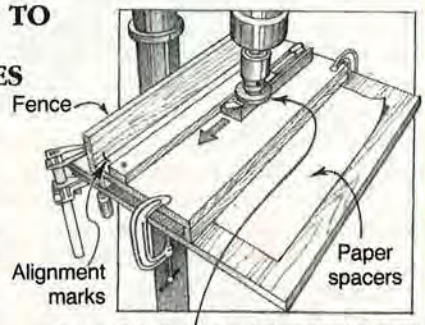
My husband is into the big stuff—cabinets, furniture, and so forth. I do sign work with the router and just enjoy being in the shop. Thank you so much for many clever ideas and for instructions a layperson can understand. You make your magazine something to look forward to.

—Cecelia Deuel, Kernville, Calif.

I have tried a few of your projects and my favorite is the animal carousel. I like it so much that I have made six to date. I made two with your original animal patterns. Then, I made others with clowns, a Christmas theme, and carousel horses. My latest carousel: Santa on a sleigh with four reindeer.

—Niki Gilbert, Odessa, Fla.

ANOTHER WAY TO SHARPEN JOINTER KNIVES



Note: Grinding wheel guard not shown

In the August 1988 issue of *WOOD* magazine, the article on sharpening jointer and planer knives on page 74 suggests to raise the table slightly after the first pass or two. A better method is what I describe as the "turning over a new leaf" technique. Place the jig on one or two layers of manila file folders on the drill-press table. Instead of manually moving the table, you control the amount of steel being removed by inserting a file folder beneath the jig after each pass. This technique increases your control of the cut and reduces the danger of taking off too much steel at one time.

—William Brousseau, Lower Sackville, Nova Scotia

Thanks for the suggestion, Bill. Your method simplifies the calibration process.

TRY THESE WOODS FOR RELIEF CARVING

Since our "Step-By-Step Relief Carving" article appeared in the February 1989 issue, some beginning carvers have asked us what woods to use for relief carving. Jim Rose, our source on relief carving, tells us these popular woods carve easily: butternut (the wood used in the article), sugar pine, jelutong, basswood, redwood, and tupelo. More-experienced carvers may want to try black walnut—a harder, but beautiful, wood.

DISC SANDING

In your stave-bowl construction article in June 1988, you mention fitting a tablesaw with a disc-sanding attachment. I have inquired about this item in our local stores, but no one has heard of this arrangement. Where can I buy this setup for my tablesaw?

—Kris Kransberg, Tavernier, Fla.

On page 136 of their 1988-89 Power Tool Guide, *Sears shows an 8" sanding disc (item no. 9R22741) for $6.99 plus postage and shipping. And, good luck with your bowls, Kris.*

Continued on page 12

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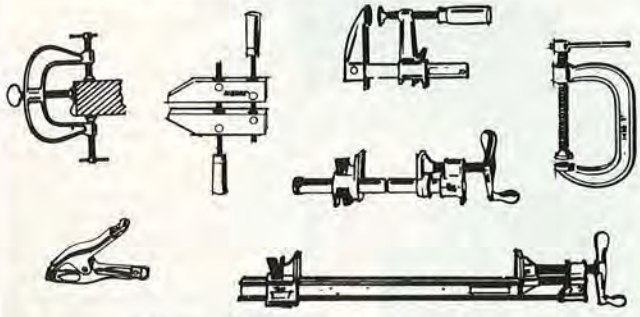

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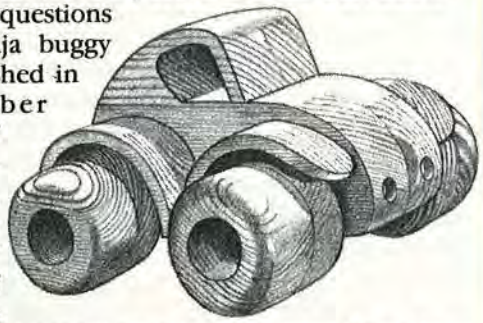
TALKING BACK

Continued from page 11

WASTE SOME WOOD, SAVE SOME FINGERS



I have some questions about the baja buggy project published in the December 1988 issue of *WOOD* magazine. First, why do you need two 12" pieces of 2×4 stock planed to 1⅛"? If I follow this, I will have 6" of stock left over; I thought the remaining stock would be for the fenders, but I later found out the fenders required another piece of 2×4. I feel one 12" piece planed to 1⅛" and crosscut into two 6" pieces would do.

Second, wouldn't it look better to plane or resaw a 6" or 12" piece of 4×4 to 2⅛" for the body and wheels? This eliminates a glue line and mismatched grain when the buggy is stained or finished clear.

Third, the windows are easier to cut with a ¼" start hole and a scrollsaw. This way, you eliminate the access cut made by the bandsaw.

I used these methods to make a buggy for my godson. And, thank you for the plans; they give me ideas to use on other toys I make.

—Harry Osborne, New Castle, Va.

Harry, you're not the first reader to ask these questions. For safety reasons, we never recommend planing or resawing any stock shorter than 12". Even though our method wastes a little bit of stock, safety always remains our first concern.

On your second point, it's tough for some of our readers to find good-quality 4×4 pine or fir for projects. Also, we've experienced fewer stability problems when laminating 2×4 stock than when planing 4×4 stock. In comparison to 2×4 stock, we've noticed a slightly higher moisture content and lower quality with 4×4 stock. We believe that even by planing down 4×4 material, you're likely to end up with a piece of stock that will twist or warp; laminated stock tends to be much more stable.

Third, we hope readers will realize there is more than one way to build a project. Yes, a scrollsaw would be great to eliminate one cut mark. But, we suggested the bandsaw because nearly 60 percent of our readers own bandsaws (38 percent of our readers own a scrollsaw). In addition, some scrollsaws have a 2" maximum depth of cut.

Space limitations dictate that we can't list all the hand- and power-tool alternatives for assembling our projects. We applaud our readers who use our plans as a springboard to customize our projects to their needs—or as you've done—use alternate machines to achieve the same results.

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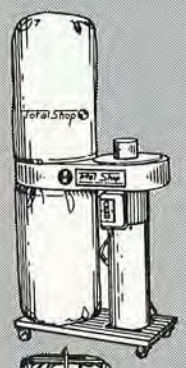

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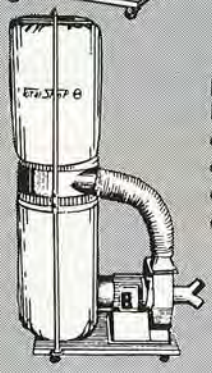

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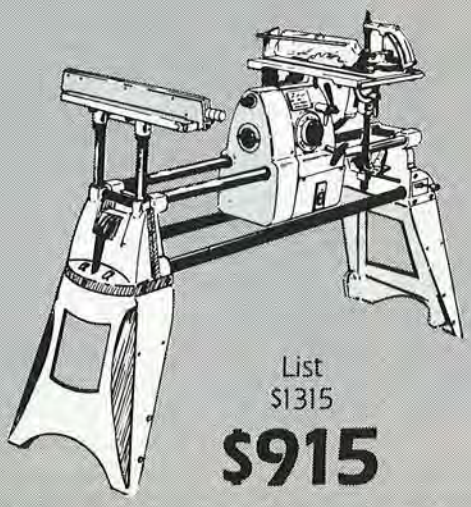

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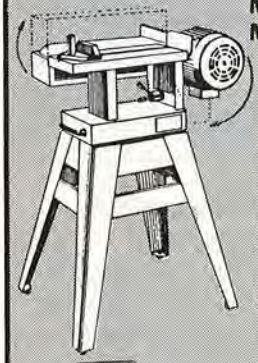

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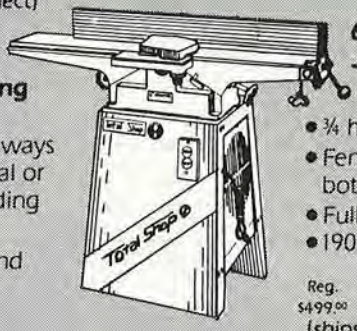

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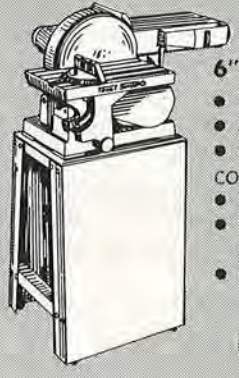

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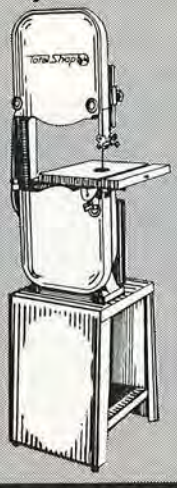

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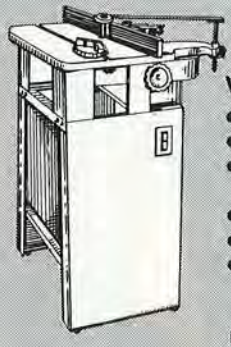

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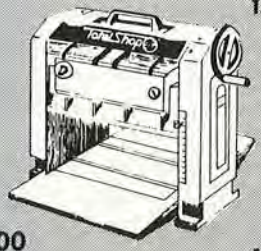

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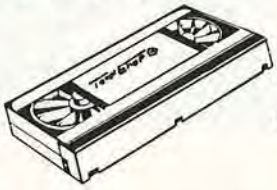

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—John A. Byer, Vancouver, B.C., Canada

WIN A POWER TOOL

TOP SHOP-TIP CONTEST

Often without realizing it, we've all discovered techniques around the shop that help us work more efficiently. But now, you have a better reason than ever to get those tips into *WOOD*® magazine!

Starting with this issue, our editor's panel will award a power tool and our own Woody Award to the reader who submits the top shop tip (you'll find this issue's winner on page 16). So get busy and think of your most useful and original tips, because we'll be giving away more power tools! Everyone can't win the top prize, of course, so as always, we'll pay $25 for each published submission. Also, Woodcraft Supply Corp. will award a $25 gift certificate for all the tips in this issue. We try not to use shop tips that have run in other magazines, so please send your tip to only one magazine. We cannot return shop tips. Mail your tips, address, and daytime phone number to:

Shop Tips
Better Homes and Gardens®
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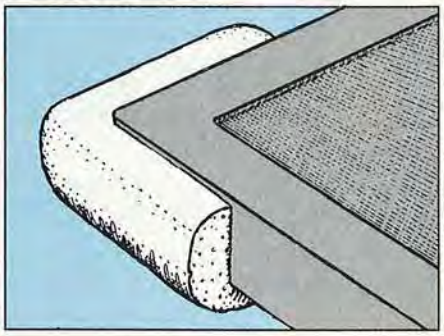
SOFTEN THE BLOW FROM SHARP CORNERS

The corners of the tables on stationary power tools can inflict painful bumps, particularly on the heads of children.

TIP: Cover these sharp metal corners with lengths of pipe insulation tubing slit open on one side. Glue in place using hotmelt adhesive. Then trim the padding flush with the top of the table.

—Ak Lallas, Viroqua, Wis.

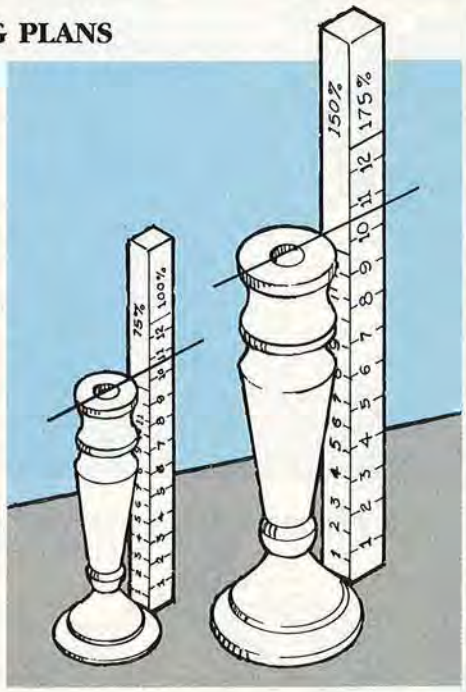


FAST METHOD OF RESCALING PLANS

Reducing or enlarging patterns usually means spending hours at the drawing board to replot the pattern on graph paper.

TIP: Photocopy several increased and decreased copies of a 12" ruler, scaled at various ratios such as 25, 50, 75, 100, 125, and 150 percent. Glue the photocopies to pieces of wood as shown at *right*. Then, use the full-sized ruler to measure the original object or pattern. Next, determine the increase or decrease in size needed. For example, we measured the original 10½"-high candlestick shown at *right*, and laid out a larger proportioned candlestick using the 175 percent ruler.

—Kenneth A. Storey, Chattanooga, Tenn.



FINISH GOES ON SMALL PARTS—NOT FINGERS

Applying practically any kind of finish to small wooden pieces often turns into a messy process. Whether you spray or brush the finish, keeping the parts in one place can be difficult.

TIP: You'll find it a snap to finish small items such as knobs and pulls if you press them onto strips of double-faced cloth-backed carpet tape attached to a sheet of corrugated cardboard.

—Dixie Thorne, Ojai, Calif.

Continued on page 16

DUST COLLECTOR STAMPEDE CONTINUES

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G1030

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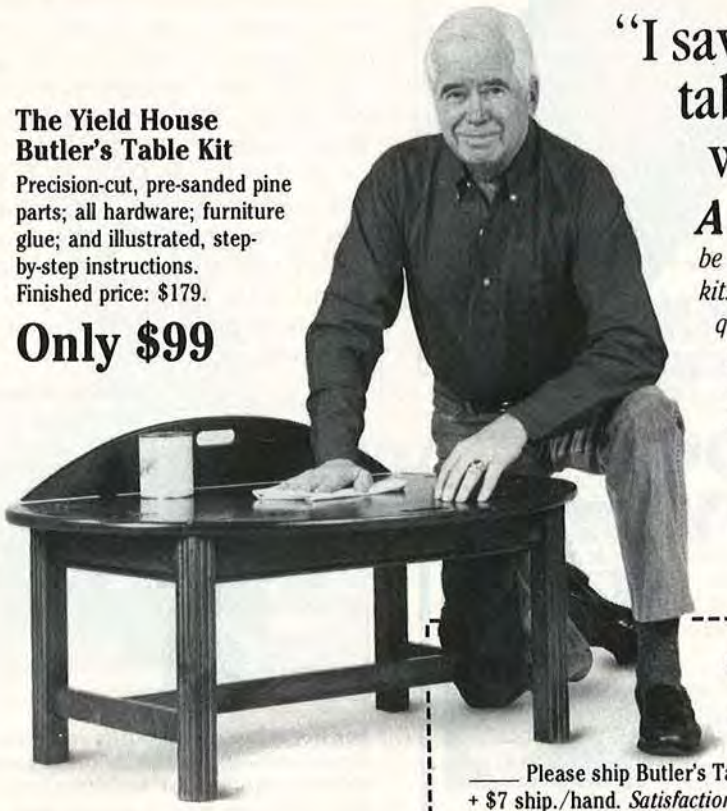

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TIPS FROM YOUR SHOP (AND OURS)

Continued from page 14

STATIC CLING CURE WINS READER A BISCUIT JOINER

Powder-fine sawdust that accumulates and sticks to face shields, goggles, and glasses can interfere with a safe, clear view of your work when using power tools. The culprit: static electricity.

THE PRESTIGIOUS WOODY AWARD

TIP: Put the kibosh on static electricity by cleaning your safety eyewear with a used sheet of fabric softener. Fresh pieces contain a heavier chemical layer and are not as soft as those that have been through the clothes dryer at least once. The soft sheet will remove both dust and static without scratching the lenses. If you don't have any fabric softener sheets, a thin film of Armor All brand automotive vinyl protectant rubbed in with a soft cloth also works well.

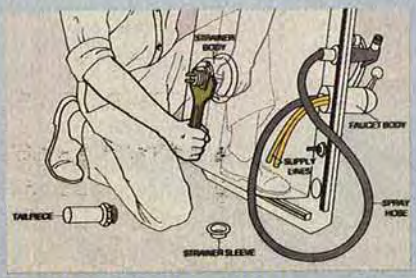
You can also use this trick to clean and treat clear plastic shields on power tools. Repeat the treatment as necessary.

—Anita K. Booth, Lakewood, Calif.

For her winning tip, Anita receives the Freud model JS-100 biscuit joiner shown *above*. For information on how you can win a power tool, see contest details on page 14.

Continued on page 18

"Get your home improvement project off to a great start for only $1.99" Bob Vila



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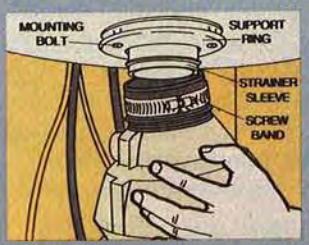

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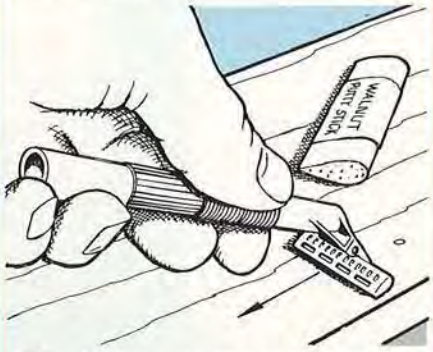
TIPS FROM YOUR SHOP (AND OURS)

Continued from page 16

SMOOTH REPAIRS ARE A MATTER OF A CLOSE SHAVE

The success of making inconspicuous finish repairs depends on achieving as smooth a surface as possible with a putty stick of the correct color.

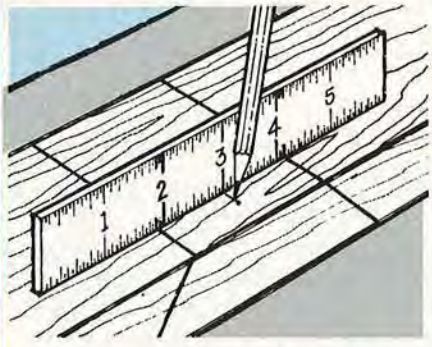


TIP: Make sure the touch-up material is about body temperature so it lays on an adequate layer easily. For a really smooth surface, remove the excess putty with a disposable razor or one-sided razor blade as shown *above*.

—Paul C. Krueger III, Wharton, N.J.

FAST AND ACCURATE WAY TO FIND CENTER

Locating the center between two points often involves a lot of guesswork or math.



TIP: Here's a way to mark a center quickly and accurately. As shown *above*, just set a rule between the two points so two different inch marks fall equal distances from the two points. The inch mark that falls halfway between the points indicates the center. In this example, we've positioned the 2" and 4" marks ⅛" inside the two points. The center falls at the 3" mark.

From the* WOOD® *magazine shop

Continued on page 20

New Feet-Inch Calculator Solves Woodworking and Home Building Problems—*In Seconds!*

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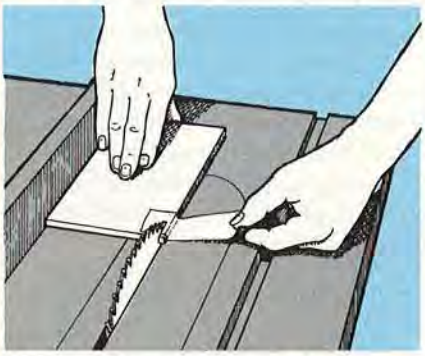
TIPS FROM YOUR SHOP (AND OURS)

Continued from page 18

RIP NARROW STRIPS SAFELY

Ripping short, narrow strips of wood on a tablesaw can be dangerous. Once you complete the cut, the loose strip rattles around between the blade and the rip fence, creating a kickback hazard.



TIP: Set up your saw so you can cut the strip on the outside of the blade rather than between the blade and the rip fence. Stabilize the strip by adding a 6–8"-long piece of at least ¾"-wide masking tape or duct tape so you can snatch the piece away from the blade when you finish the cut. **CAUTION:** Be sure the blade guard is in place when making this kind of cut; we omitted it from the drawing only for the sake of clarity.

If you need several strips the same size, make a pencil mark on the table. Then, align the outside edge of the piece being cut and move the fence for each cut.

—From the WOOD® magazine shop

MORE HELPFUL TIPS

You'll find other useful shop tips scattered throughout this issue of *WOOD®* magazine:

- A surefire mixture for homemade wood putty, page 4[illegible]
- How to make an oil finish shine, page 66.
- The trick to making rounded corner moldings, page 67.
- A tip on staining end grain without darkening, page 72.
- Keep your sanding belts in like-new condition with these suggestions, page 76.

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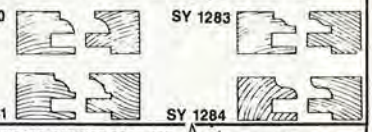

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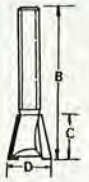

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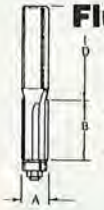
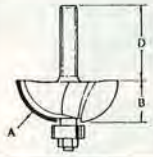
* 812-1/2	1	$12

Flush Trimming



PART NO.	A	PRICE
S8012Y	3/8	$7
S8016Y	1/2	$8
* S8016Y½	1/2	$8
S8020	5/8	$10
* S8020½	5/8	$10

Cove Bits



PART NO.	A	PRICE
S702Y	1/16	$12
S704Y	1/8	$12
S706Y	3/16	$12
S708Y	1/4	$13
S710Y	5/16	$13
S712Y	3/8	$13
S716Y	1/2	$14
* S716Y-1/2	1/2	$14
* S724Y-1/2	3/4	$28

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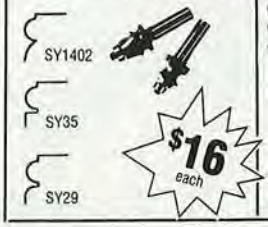

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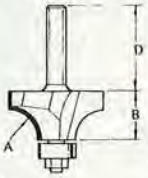
Roundover

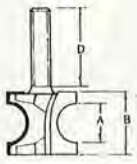


PART NO.	A	PRICE
S502Y	1/16R	$11
S504Y	1/8R	$11
S506Y	3/16R	$11
S508Y	1/4R	$11
S510Y	5/16R	$12
S512Y	3/8R	$15
S516Y	1/2R	$16
* S516Y-1/2	1/2R	$16
* S520Y-1/2	5/8R	$20
* S524Y-1/2	3/4R	$20
* S528Y-1/2	7/8R	$34
* S532Y-1/2	1R	$34
* S536Y-1/2	1-1/4R	$40

Core Box

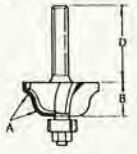
PART NO.	A	PRICE
S408	1/4	$10
S412	3/8	$10
S416	1/2	$12
S420	5/8	$14
S424	3/4	$15
* S424-1/2	3/4	$15
* S432-1/2	1	$18
* S450-1/2	1-1/2	$30

Bull Nose



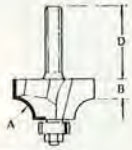
PART NO.	A	PRICE
SY9-1	1/4	$14
* SY9-1½	1/4	$14
SY9-3	3/8	$15
* SY9-3½	3/8	$15
SY9-4	1/2	$15
* SY9-4½	1/2	$15
SY9-5	5/8	$16
* SY9-5½	5/8	$16
SY9-6	3/4	$16
* SY9-6½	3/4	$16
* SY9-8½	1	$18
* SY9-9½	1-1/8	$30
* SY9-10½	1-1/4	$35
* SY9-11½	1-3/8	$38
* SY9-12½	1-1/2	$40

Roman Ogee



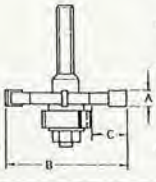
PART NO.	A	PRICE
S5705Y	5/32	$16
* S5705Y½	5/32	$16
S5708Y	1/4	$17
* S5708Y½	1/4	$17

Beading



PART NO.	A	PRICE
S602Y	1/16R	$11
S604Y	1/8R	$11
S606Y	3/16R	$11
S608Y	1/4R	$12
S610Y	5/16R	$13
S612Y	3/8R	$15
S616Y	1/2R	$16
* S616Y-1/2	1/2R	$16
* S624-1/2	3/4R	$20

Slot Cutter - 4 Flutes



PART NO.	A	PRICE
SY7002	1/8	$20
* SY7002½	1/8	$20
SY7004	5/32 (4mm)	$22
* SY7004½	5/32 (4mm)	$22
SY7006	3/16	$22
* SY7006½	3/16	$22
SY7008	1/4	$24
* SY7008½	1/4	$24

*Indicates ½" shank.

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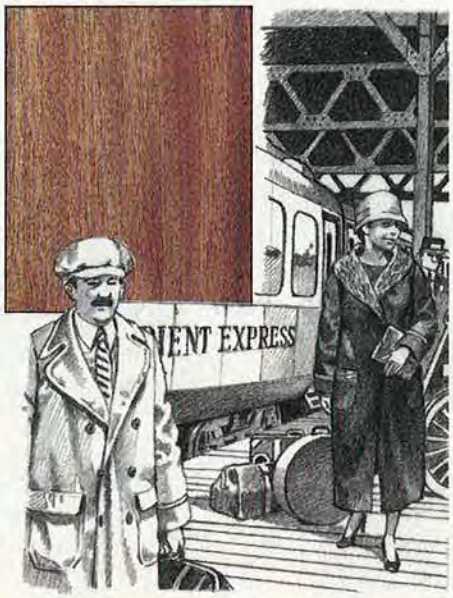
FIGURE THAT MADE A REBOUND



Rare is the sapele (sap-EE-lee) log without figure. In fact, mahogany's light-brown cousin from West Africa offers perhaps the greatest variety of any species—quilted, mottled, rope, ribbon-stripe, and more. Yet, the same irregularity of grain that produces sapele's incredible array once made it highly unpopular with craftsmen.

Believe it or not, woodworkers shunned sapele lumber when it was first imported to the U.S. in the early thirties. But, for a very logical reason. It seems that sapele has a terrible tendency to warp unless quarter-sawed.

Quarter-sawing, however, would have increased production time and raised the price for a wood that already was unwanted. Faced with the dilemma, some enterprising lumbermen experimented, and discovered that the large, straight trunks of sapele make perfect candidates for slicing or peeling into thin sheets. And, like the kiss that turned a frog into a prince, veneering transformed sapele into an exquisitely beautiful wood.

As veneer, the wood no one wanted became famous, and demand grew. The Columbia Broadcasting Company (CBS) covered the corridor walls of its Los Angeles studios with it in 1938. WNYC Radio in New York followed suit, and paneled 1,700 square feet of audience and reception rooms. But, the lustrous, many figured wood had already achieved its highest honor. As the opulent decor in the private compartments of Europe's famed Orient Express, sapele was the crowning touch of elegance in rail travel during the decades that spanned two world wars. Today, stunningly restored, sapele-clad cars ride the rails between Boulogne and Venice or Vienna.

Illustration: Jim Stevenson
Photograph: Bob Calmer

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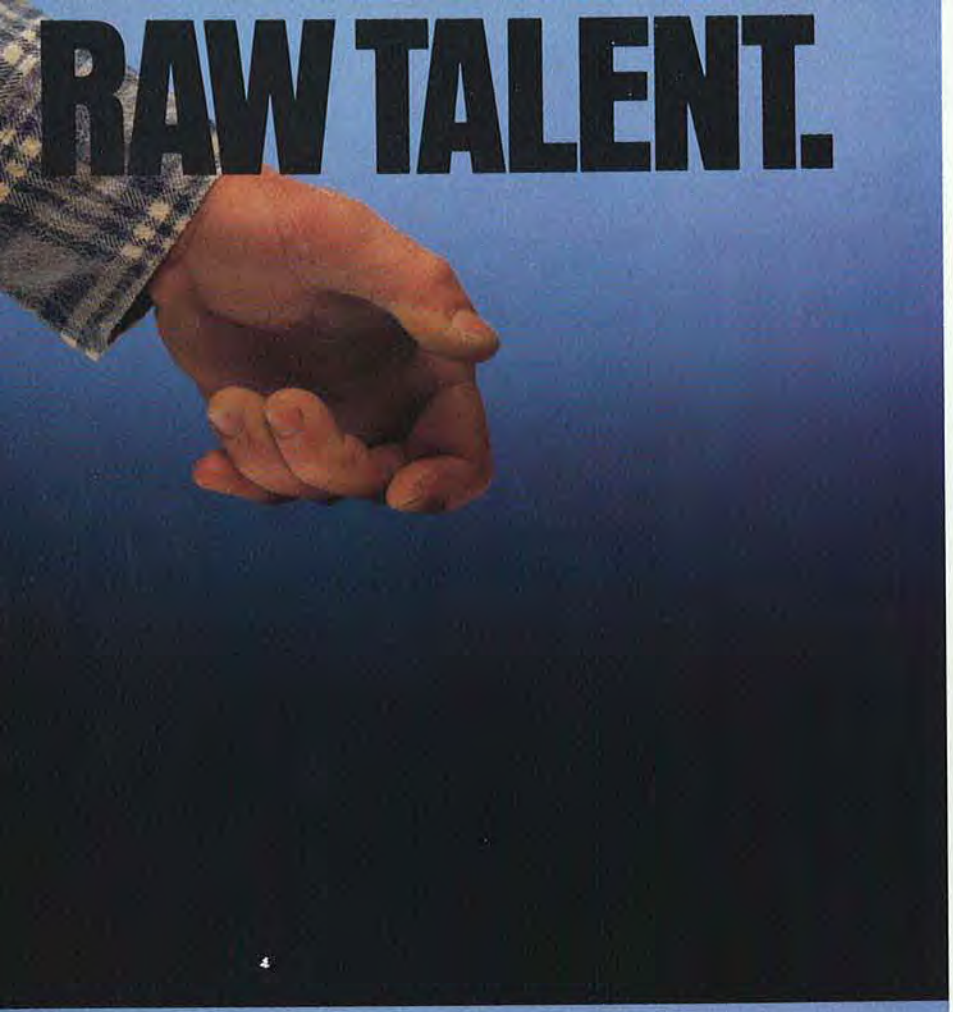

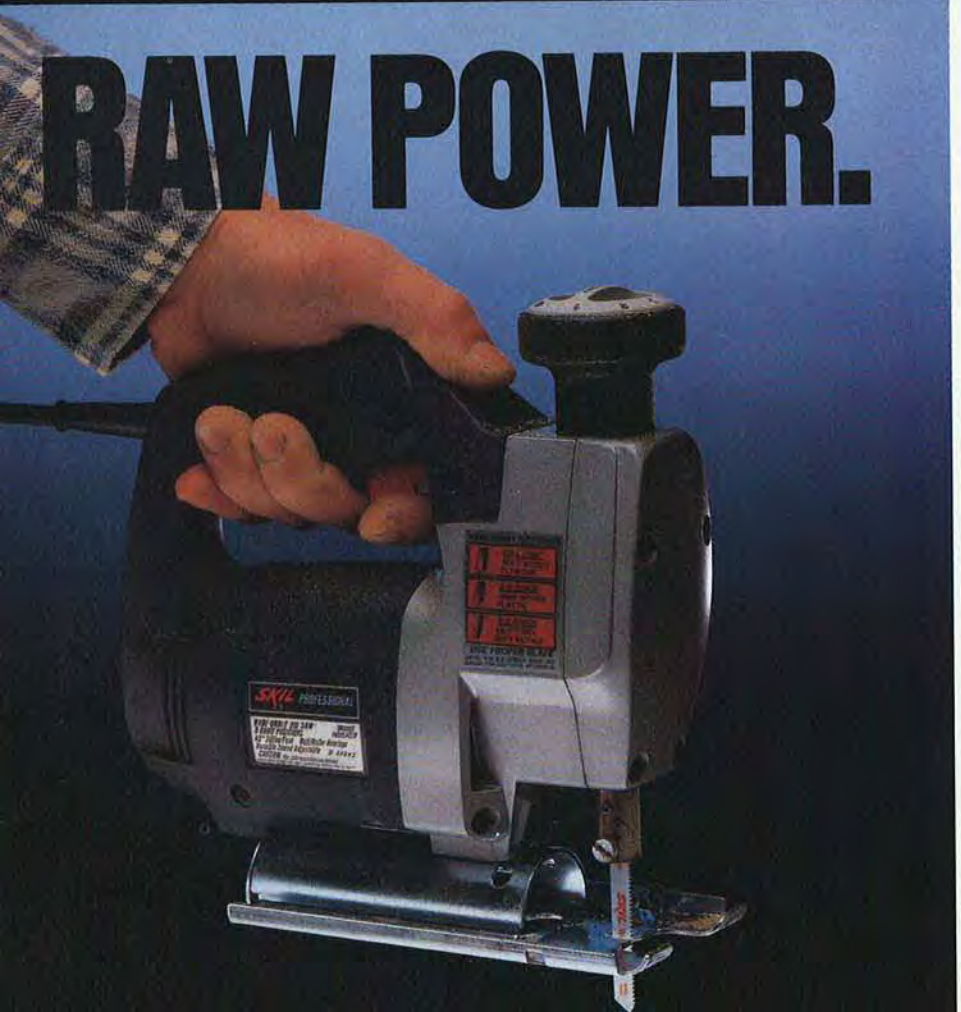

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Print this article

DOUGLAS FIR

The globe-trotting he-man of American softwoods

Diaries claim that early loggers in what came to be Oregon and Washington often felled 400′-tall trees, each containing enough high-grade lumber to build seven houses! The lofty tree was the Douglas fir, and it still dominates the great forests of the Pacific Northwest.

In 1827, English botanical explorer David Douglas recognized the fir's resource potential. Hoping that the easily grown tree could adapt to his country's reforestation efforts, he shipped seed cones from the Columbia River basin back to the British Isles.

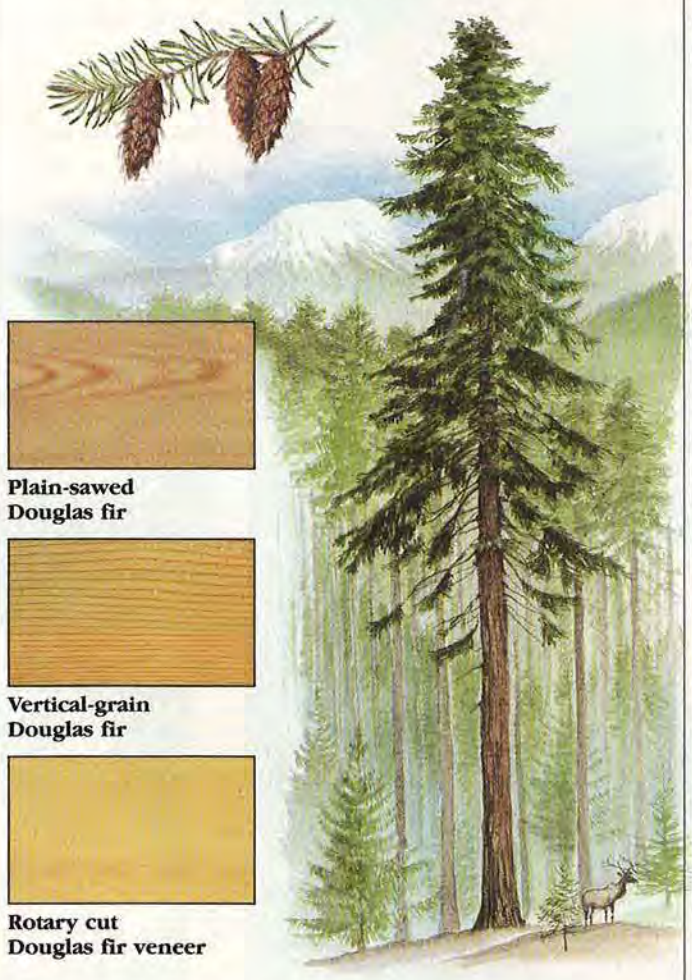
From that introduction, the fir found favor as fast-growing timber first in England, then throughout western Europe. Now, even the adopted habitats of Australia, New Zealand, and South Africa boast Douglas fir forests.

Wood identification

In the U.S., Douglas fir (*Pseudotsuga menziesii*) naturally ranges from the Mexican border north to Alaska, and from the Pacific coast east to the Rocky Mountains. Often found in pure stands, Douglas fir can attain an average mature height of about 300′ and diameters from 10′ to 17′.

On older trees, the rough bark may be 12″ thick. Younger trees have a smooth bark with frequent blisters filled with a pungent resin.

Tiny winged seeds, released from cones as large as a man's fist, quickly germinate in sufficient sunlight.



Plain-sawed Douglas fir

Vertical-grain Douglas fir

Rotary cut Douglas fir veneer

Because of this, Douglas fir quickly takes over and reforests burned or clearcut areas.

Douglas fir's pinkish-yellow to orange-red heartwood provides a distinct contrast in the growth rings. On flatsawed boards and rotary cut veneer, this translates to an abrupt color change. The thin band of sapwood is often nearly pure white.

Working properties

In comparison to its weight, Douglas fir ranks as the strongest of all American woods. It is also stiff, stable, and relatively decay resistant.

Douglas fir's coarse texture can't easily be worked with hand tools. And to avoid tearing grain, even power tool blades must be sharp. Yet, the wood grips nails and screws securely, and readily accepts all types of adhesives.

Because Douglas fir contains fewer resins than many other softwoods, count on success with paint and clear finishes. Staining, however, becomes a problem due to the light-to-dark variation between growth rings that causes uneven coloration.

Uses in woodworking

Vast quantities of Douglas fir provide dimension lumber for the construction industry and veneers for plywood. The wood's appearance and easy-working properties have earned it a spot in the manufacturing of windows, doors, and moldings.

Flatsawed, Douglas fir makes attractive, serviceable cabinets and paintable furniture. Sawn as vertical grain, Douglas fir performs well as flooring and looks stunning as cabinetry.

Cost and availability

Found across most of the nation as common construction lumber, Douglas fir falls in the inexpensive price range of about $1 per lineal foot. However, sawed for vertical grain and graded for "superior finish," the cost rises by at least three times. Douglas fir plywood in all grades is readily available.

Illustration: Steve Schindler
Photographs: Western Wood Products Assn.

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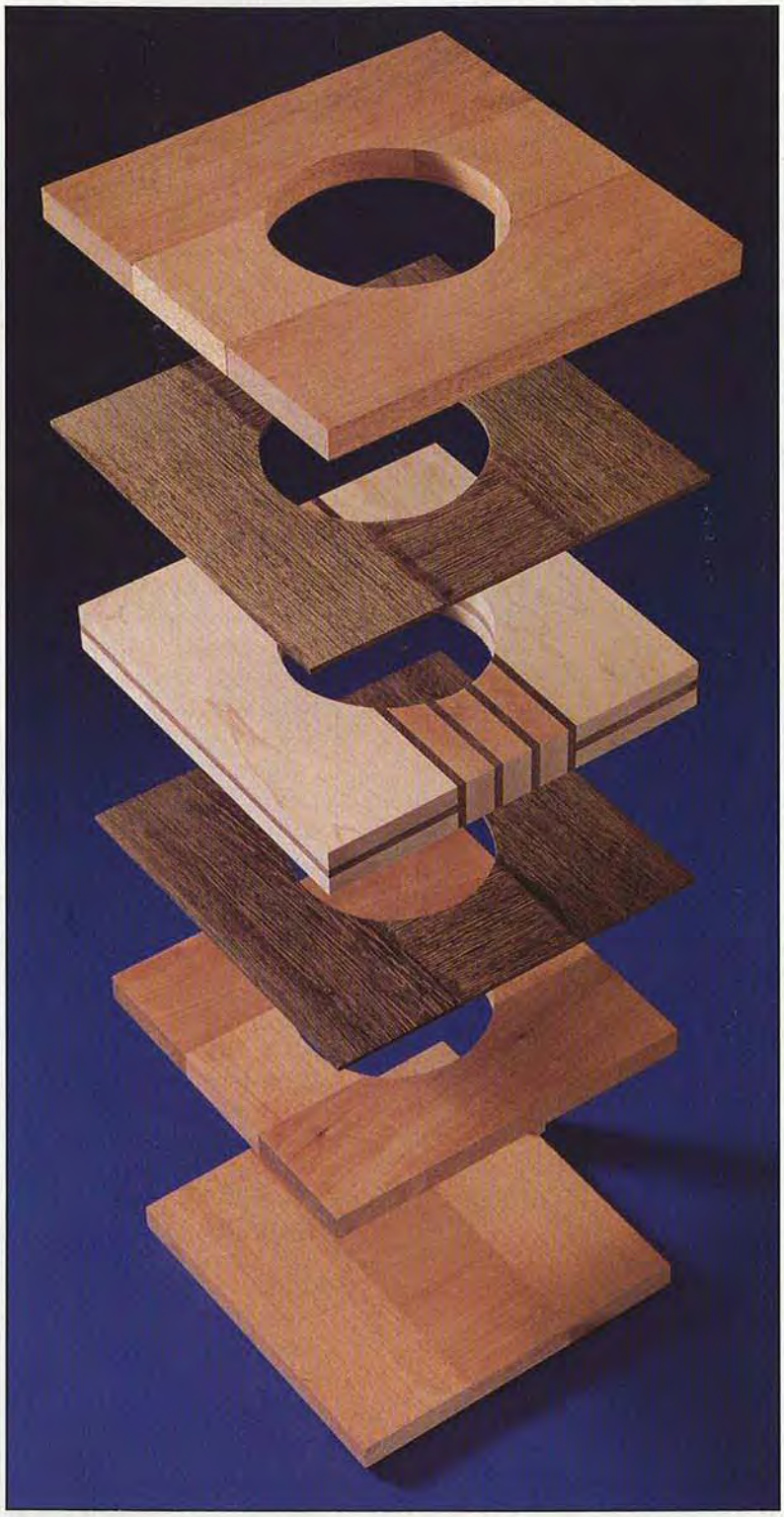
YOU'LL PILE UP COMPLIMENTS WHEN YOU TRY THESE

STACK-LAMINATED



Borrowing a reader's technique for making stack-laminated bowls, we've turned some of the best-looking bowls to come out of the *WOOD*® magazine shop. With our step-by-step instructions, you can do the same—even if you're a newcomer to woodturning. Then, sit back and watch your friends marvel at your latest accomplishment.

Bill Lovelace

We've been dying to do this article ever since we met woodworker and retired pilot Bill Lovelace in Phoenix three years ago. At the time, we were so amazed by the looking-glass finish on his stack-laminated bowls that we published a finishing-technique article on page 52 in the December 1986 issue of *WOOD* magazine. Our readers also were impressed, because shortly after that story appeared, Bill had requests from across the country wanting to know more about his bowls. Soon, he was teaching classes to these fellow readers. It's no wonder. At $250–450

BOWLS

PROVEN TECHNIQUES FROM THE SHOP TESTED WOOD MAGAZINE SHOP

We thoroughly test and refine every technique in WOOD® *magazine before presenting it to you.*

PLANNING: LIKE MAKING CUTTING BOARDS

If you've ever assembled a cutting board of your own design, you've already made many of the same types of decisions that go into planning a stack-laminated bowl. First of all, determine the size (diameter and height) of your bowl by considering its use (decorative or functional) and placement in your home. Bill Lovelace turns only 12"-diameter bowls because "people love big bowls—they sell great."

Just as you have a lot of flexibility in the size of a bowl or cutting board, you also can choose any profile or laminate design for your bowl. To give you an idea of the possibilities, Design Editor Jim Downing drew up a few options shown *below.*

Once you've decided on the bowl's look, it's time to determine the thickness of the bowl's profile. First, draw a side profile (see three examples on the next page). Then, measure the thickness of the profile and refer to the chart on the next page to determine the width of the bowl blank segments. As shown in the top view of bowl blank layers on the next page, every layer above the bottom layer consists of two long segments of equal size and two equally sized short segments. The length of the long segments equals the diameter of your bowl. When you place the short segments between the long segments, the short segments should be long enough to form a square layer.

CUT, CLAMP, AND STACK: MAKING SIMPLE LAYERS

Simple layers, such as the bottom three and top two tiers in the photo *opposite*, have one wood species, with edge-to-end joints, and only five segments for the bottom layer and four segments for the other laminates. Feature layers, such as the one shown third from the top in the photo *opposite,* may consist of several types of wood, with face-to-face, face-to-edge, edge-to-end, and edge-to-edge joints, and an unlimited number of wood pieces in several species. We'll talk about feature layers later.

Before cutting any stock, use a square to set your tablesaw blade to exactly 90°. This step, more than any other, will lead to the tight joints that distinguish a great bowl from a so-so effort. Also, to ensure tight joints between layers, plane all the stock for each layer to the same thickness before making any cuts. Don't be in a rush as you cut the parts—your patience will lead to segments with flat, perpendicular surfaces and crisp corners—key ingredients for tight joints.

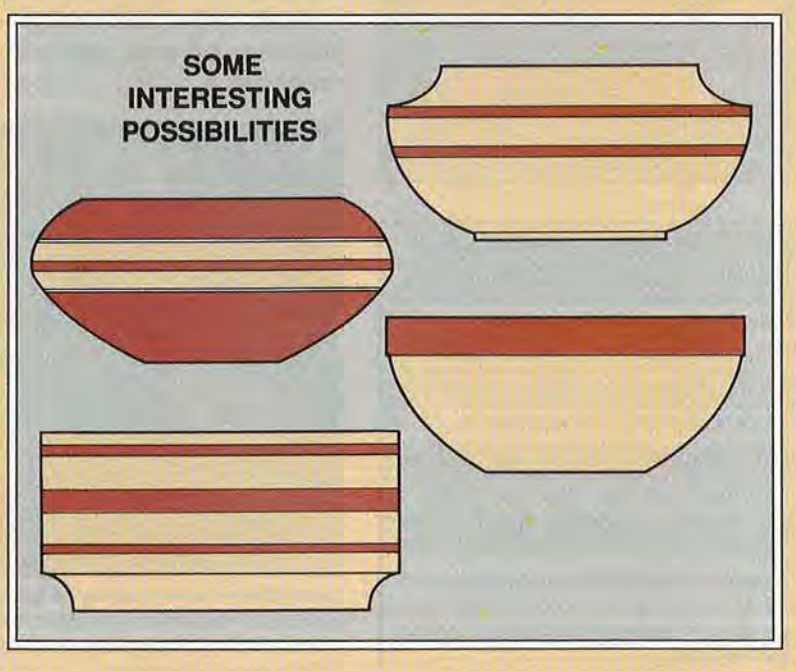
Continued

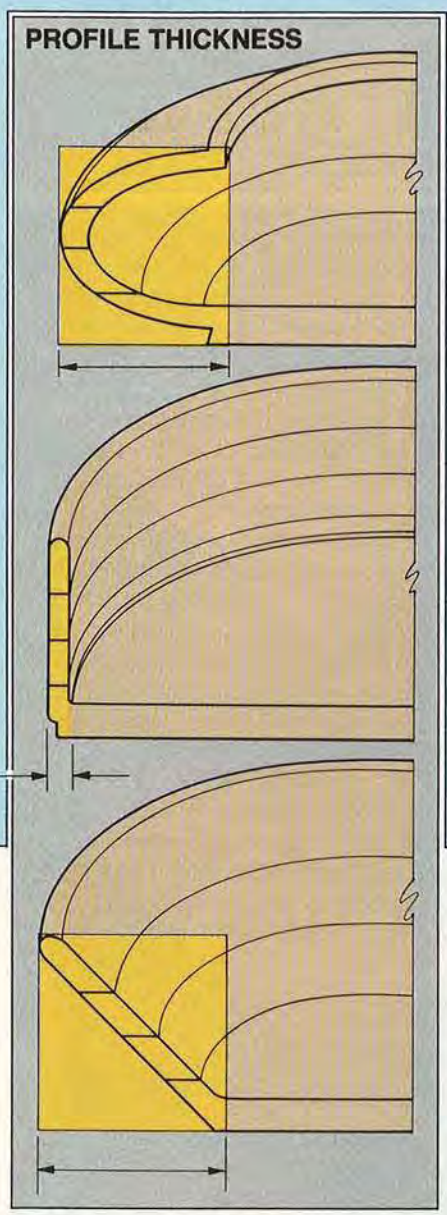
apiece, he sells every masterpiece he makes. As Bill says, "They're winners." And, we can't argue with that.

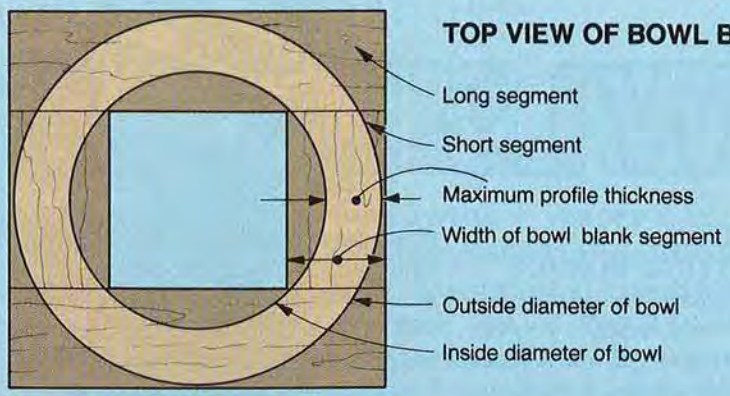
To let all of you in on Bill's secrets, we made another pilgrimage to his shop late last year. Then, we spent several days in our own shop, learning how to assemble and turn these exquisite bowls, and adding a few techniques of our own.

Not surprisingly, the process begins with planning the appearance of your bowl. Then, you build all the necessary layers and laminate them into a square blank. After you bandsaw the blank to a nearly round form, you mount it to your lathe and proceed to turn one gem of a bowl, complete with shiny facets of various-colored woods.

Just keep this bit of advice in mind: When your lathe screams "uncle" because you're turning so many of these bowls, give it a short break while you assemble another one.







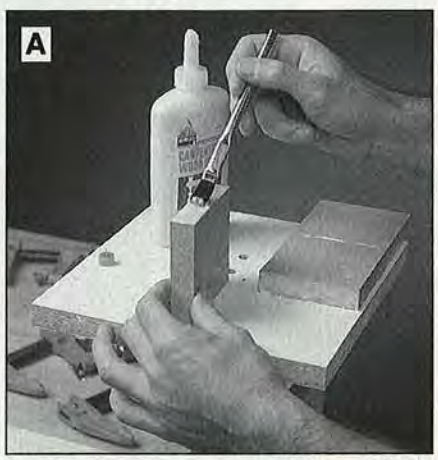
A HANDY DEVICE FOR QUICK CLAMPING

To take some of the hassle out of clamping, we suggest you build the platform shown at *right* from polyester or melamine-coated particleboard. This "lily pad," or "toadstool" as it came to be known around our shop, provides an elevated surface that dried glue and laminated segments easily separate from without waxed paper. For all the gluing operations, you can make perfectly flat layers by clamping segments between the toadstool and another piece of coated particleboard. A 4×8′ sheet of this material costs about $30 at lumberyards. If you want to avoid this expense, clamp your layers between waxed paper and particleboard. We suggest you make at least one platform; and if you want to work fast, you'll use as many as three at once.

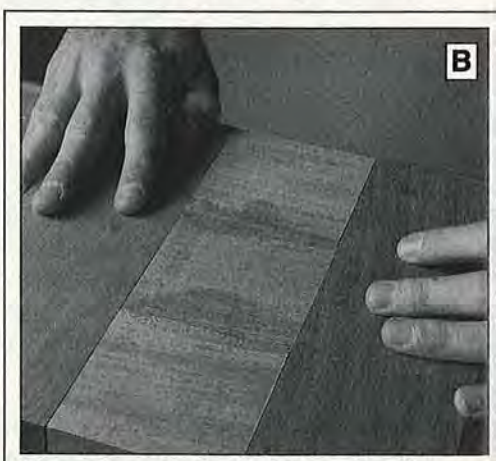
LET'S BUILD THE BOWL

With the steps on the previous page done, it's time to get to the fun part—assembling your bowl. Starting at the bottom and working up, use yellow woodworker's glue to join the three bottom segments as shown in photo A.

Now, clamp them together as shown in Clamping Setup 1 on the next page. No matter how straight you try to line up these pieces, they won't set flush enough to form a tight joint to adjacent long segments as shown in photo B. To solve this



Spread liberal amounts of glue on both surfaces wherever you join two pieces. Here, we're gluing the middle segment of the bowl's bottom.

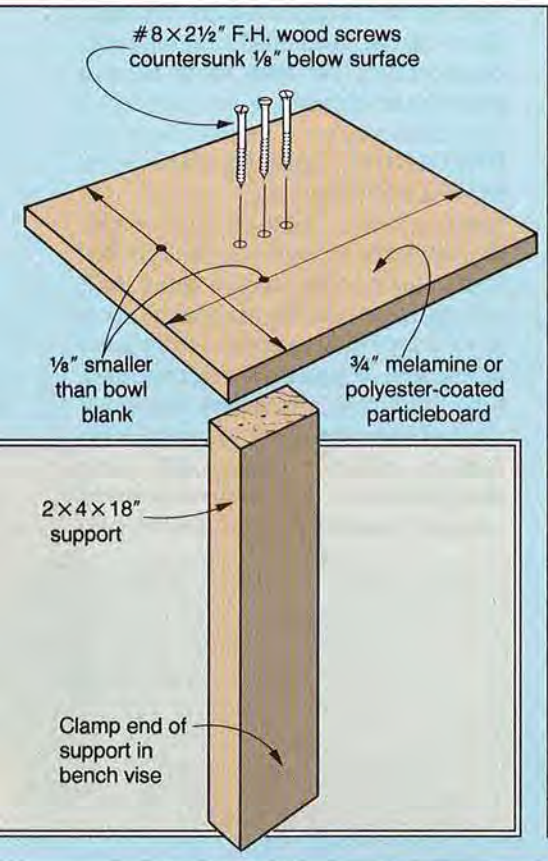


Since it's nearly impossible to glue the middle segment of the bowl's bottom perfectly straight . . .

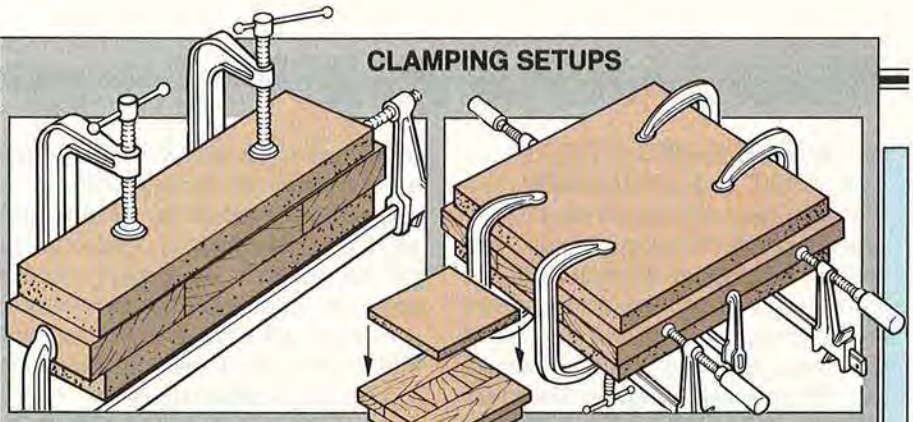
DETERMINING WIDTH OF BOWL-BLANK SEGMENTS

Bowl Diam.	Profile thickness						
	¼″	⅝″	1″	1½″	2″	2½″	3″
4″	1″	1¼″	1½″	1¾″			
6″	1¼″	1½″	1¾″	2¼″	2½″	2¾″	
8″	1½″	1¾″	2¼″	2½″	2¾″	3¼″	3½″
10″	1¾″	2¼″	2½″	2¾″	3¼″	3½″	4″
12″	2¼″	2½″	2¾″	3¼″	3½″	4″	4½″

To determine the width of your bowl-blank segments, find the figure in the chart that corresponds to the diameter and profile thickness of your bowl design.

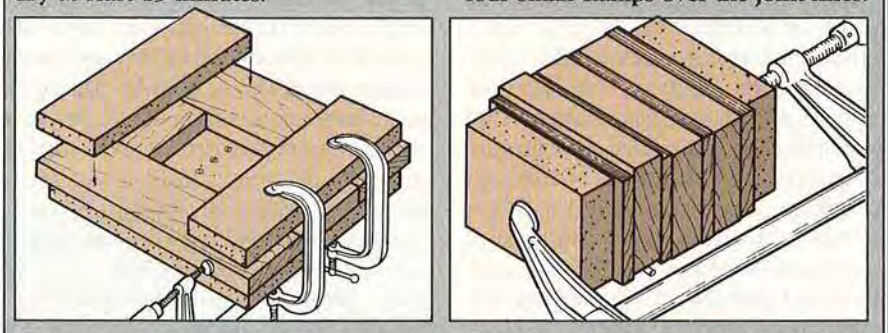

#8×2½" F.H. wood screws
countersunk ⅛" below surface
⅛" smaller than bowl blank
¾" melamine or polyester-coated particleboard
2×4×18" support
Clamp end of support in bench vise

CLAMPING SETUPS



1 Use this Clamping Setup to join the 3 pieces that make up the middle segment in the bottom layer. Allow to dry at least 15 minutes.

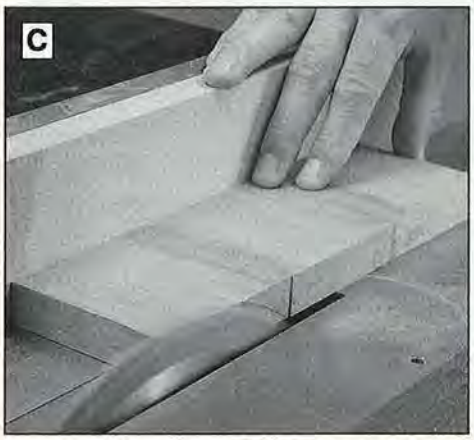
2 To join the two long segments and laminated middle segment of the bottom layer, first lightly tighten the four small clamps over the joint lines.



3 For layers other than the bottom, first place two clamps over the joint lines, then join all the segments with two longer clamps.

4 Place a ⅛" dowel under one piece when you clamp a complex segment. The raised piece provides a straight edge when you trim the segment.

problem, pass one side through your tablesaw as shown in photo C, taking off just enough to straighten that side (usually not more than ⅛"). Now, flip the segment over and do the same for the other side.



. . . take off a minimum amount of stock on both sides with your tablesaw to square the segment.

Once you've squared-up this piece, glue and clamp it to two longer segments to form the bowl bottom as shown in Clamping Setup 2 *above*. After this layer dries, use a finishing sander with 60-grit paper as shown in photo D to smooth out the surface. Remove a minimum of stock and don't gouge the wood. Now, assemble the remaining layers as shown in Clamping Setup 3 *above*. Sand these layers smooth just as you did the bottom.

To hold the layers in place while you sand them, lay them on a sheet of sandpaper attached to your bench with double-faced tape.

After these layers dry, round-out their center hole for ease of turning later. To do this, make a scrap block just big enough to fit in the hole. With the scrap block in the hole, find its center by drawing two lines connecting opposite corners of the layer—their intersection marks the center. Use a compass as shown in photo E to draw a circular center. Remove the scrap block and cut along this line with either a scrollsaw or jigsaw.

If you're not interested in making a bowl with a feature layer, jump ahead to the section **Preparing the Blank For Turning** on the following page.

Continued

FEATURE LAYERS: NOT ALL THAT COMPLICATED

You can try almost anything design-wise when making feature layers, just remember these guidelines:

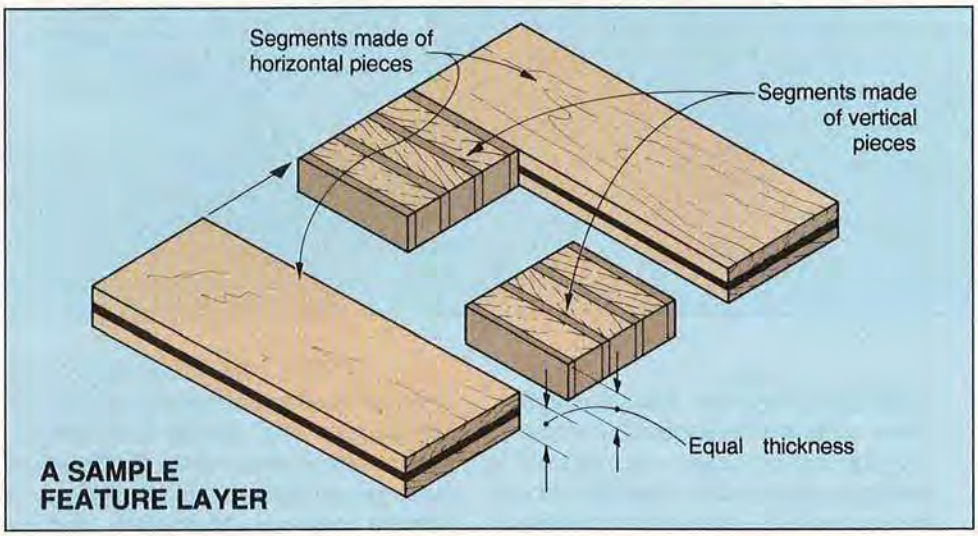
- Although made of many more pieces, feature layers still consist of two long and two short segments, just like the other layers. The only difference: Several pieces make up these assemblies. The four segments should match the width and length of the long and short segments of the other layers.
- If one of the segments has horizontal pieces, such as the one in our sample feature layer shown at *right,* the thickness of that segment determines the thickness of the layer. For example, the bowl on page 26 has a feature layer with two pieces of ¾"-thick stock and one piece of ¼"-thick stock, making for a 1¾"-thick feature layer.

After you determine the width and length of the four segments in the feature layer, cut all the pieces for them ½" too long and ½" too wide. This extra stock allows you to square the pieces later by trimming them to finished size. To clamp these segments, follow Clamping Setup 4 on page 29. Note that we placed a ⅛" dowel under one piece so it can serve later as a ripping guide.

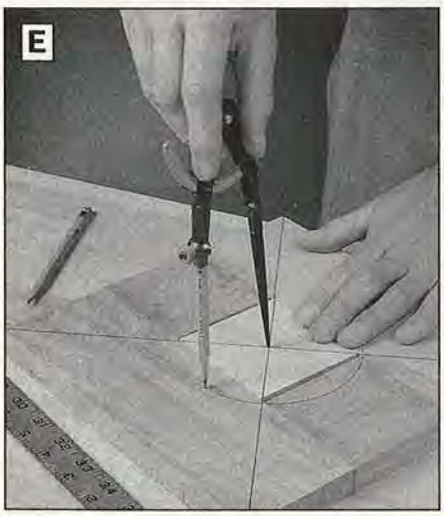
For our example, we cut the segments made of vertical pieces to the right thickness by setting our rip fence as shown in photo F. To do this yourself, snugly squeeze the segment composed of horizontal pieces between the blade and fence. Lock the fence there and remove the segment. Now, cut a scrap piece and check your accuracy by comparing the thickness of the scrap stock and the horizontal-piece segment on a flat surface such as the table of your saw. Repeat this process until the thickness of the pieces matches. In photo G, we show you how to safely saw short segments to match the thickness of the long segment. Finally, glue, clamp, sand, and cut out a circular center for this layer as you did for the others.

PREPARING THE BLANK FOR TURNING

Once you've finished the layers, dry-stack them together in their finished order. For appearance and strength, stack them just as you would lay bricks, with as little joint alignment as possible. For example, note how we alternated the position of the layers in the photo on page 26. After you're satisfied with the alignment, dry-clamp the layers and drill holes for guidepins in two

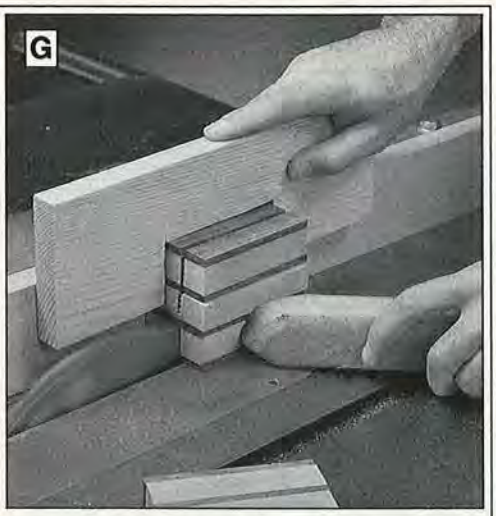


A SAMPLE FEATURE LAYER



Use a scrap block and compass to draw the circular cutaway hole in the center of each layer. This makes for easier turning later.

With the power OFF, set the rip fence to the height of one segment, test the setting with a scrap piece, and then . . .



. . . pass the other segments through the blade. We're using a pushstick and abrasive belt cleaner to safely hold the segment.

opposite corners. You want the pins (nails or waxed dowels) to fit snugly. Then, draw a line down the height of any side of the stack as a reference mark for reassembling the layers during gluing.

Next, unclamp the stack and place the guidepins in the bottom layer. Working fast, apply glue to both sides of the joining layers and stack them one-by-one on top of another as shown in photo H. If you don't feel you can assemble the blank in 15 minutes, switch to a slower-drying white woodworker's glue. When you're finished gluing, put a sheet of coated particleboard over the stack and clamp it together, spacing the clamps 2" apart around the blank. For a solid lamination that won't come apart on the lathe or separate at the joint lines after finishing, allow this assembly to dry overnight (at least eight hours).

Next, determine the center of the bottom of the blank with two intersecting lines just as you did for each layer. With a compass centered on the bottom, draw a circle as large as possible without going off the side of the blank. Finally, follow this line with your bandsaw to make the blank round.

To get your bowl mounted on the lathe, we recommend using a hardwood or Baltic birch auxiliary faceplate at least one-half the diameter of your bowl blank. To apply the auxiliary faceplate, draw a centered circle on the bottom of the bowl that's the diameter of your auxiliary faceplate and apply as shown in photo I.

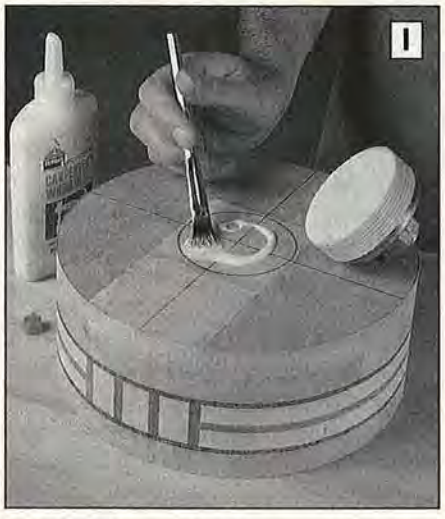
HOW THE STACKED BOWL TURNS

By now, you've probably invested 15–30 hours in constructing your bowl, so you don't want to botch the turning job. Because of the likelihood of chip-out along the joint lines, and the many directions that the grain runs, turning these bowls poses special problems. As Design Editor Jim Downing puts it, "Cutting against the grain is like petting your dog from his tail to his head—in the same way, your turning tools will ruffle the grain just as your hand ruffles his hair." Here's how to avoid these problems or handle them as they occur:

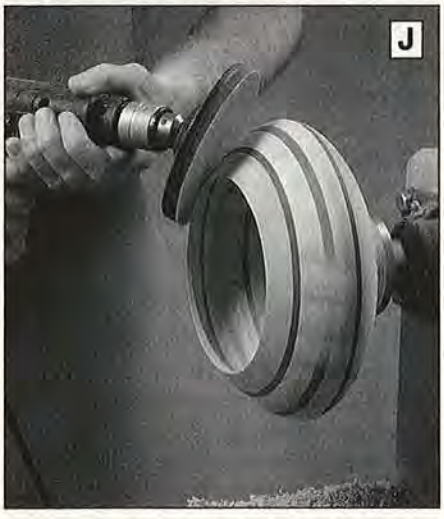
- First, start with a sharp set of tools and keep them sharp as you go. Now, set your lathe for 500–600 rpm, and rough the outside of the bowl round with a bullnose scraper. Next, do the same for the inside.
- Increase the lathe speed to 900-1,000 rpm, and use the bullnose scraper to shape the outside profile. With the same scraper, slowly and carefully scrape the inside profile, keeping the wall ½" thick (you'll sand away ¼" later, finishing with a ¼"-thick bowl). If you try to remove too much wood quickly on the inside, your tool will catch on the stock, gouging your bowl.
- Now, use a skew scraper to smooth the outside walls and inside base of the bowl. Smooth the inside with a bullnose or roundnose scraper—we found that ½" tools catch less frequently than larger scrapers. Again, go slowly on both the outside and inside to minimize grain tear-out, and you'll save yourself some sanding later.
- To speed up sanding, use a power drill and a 50-grit sanding disc to power-sand the inside bottom and outside walls of the bowl while it's turning at 900-1,000 rpm as shown in photo J. Unless you have an angle drill, you'll have to sand the inside walls by hand. After you've removed all the tear-out, sand the bowl through a succession of grits. Finish the bowl with sanding sealer and polyurethane or lacquer while it's on the lathe.

Written by Bill Krier
with James R. Downing
Photographs: Hopkins Associates
Illustrations: Mike Henry

We used waxed ¼" dowels as guidepins and lowered the successive layers on them as we glued. We sanded the ends of the dowels to round them off.



Apply glue to both the auxiliary faceplate and bowl-blank bottom. You also can use 5-minute epoxy to speed this process and spare the clamping.



You can sand the bowl by hand, but you'll save yourself a lot of time by power-sanding. An angle drill works well on the inside wall of the bowl.

A SOUTHWEST-

BORROWING FROM PATTERNS WOVEN IN HISTORY

Print this article

You won't make this bowl in an evening, in fact, it took us almost 30 hours to cut the pieces to size, glue them together, and then turn the bowl. But, you'd be hard-pressed to find a bowl of this quality for under $400.

To shave a few hours off the process, we've coaxed a wood dealer into supplying all the wood needed for the bowl. They've agreed to plane all boards to the correct thickness. See the Buying Guide on page 74 for our source.

NOTE: Stack-laminated bowls require more planning than most turnings, but the spectacular results make them worth the effort. It's essential to read the stack-lamination techniques article beginning on page 26 for in-depth information on the cutting, clamping, and turning processes needed to produce these stunning bowls. To avoid duplication, we frequently refer to photos in the techniques article.

You'll need some thin stock for this project. You can plane or resaw thicker stock to the thicknesses stated in the Bill of Materials, or see the Buying Guide for our source.

CUT AND GLUE THE PARTS FOR LAYERS 1 THROUGH 6

1 Cut parts A–F to the sizes listed in the Bill of Materials. (Cut three of the seven Bs to length plus ¼".)

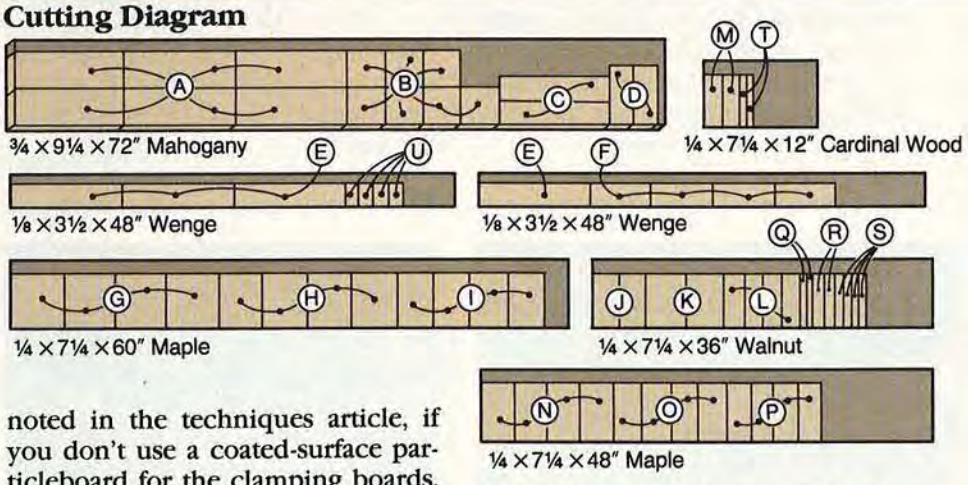
2 Position edge to edge the three Bs cut ¼" extra in length. Now, cut two pieces of plywood to 11½×4" to form the plywood clamping boards used to hold these three pieces flush while clamping. (As noted in the techniques article, if you don't use a coated-surface particleboard for the clamping boards, place waxed paper between the plywood and the pieces being clamped.) It is important that the pieces being laminated don't stick to the clamping boards.

3 Spread glue on the mating edges of the three pieces. Then, clamp the pieces edge to edge between the two pieces of plywood. (Refer to photos A, B, and C in the techniques article for help with this and the following step.)

4 Remove the clamps, and trim both ends of the three-piece lamination to 4" in length (remember, measure length *with* the grain; the three-piece lamination should measure 4" long by 12" wide.)

5 To form Layer 1, glue the three piece lamination between two A pieces where shown on the Bowl Lamination Drawing. Later, sand Layer 1 flat as shown in photo D on page 29.

Cutting Diagram

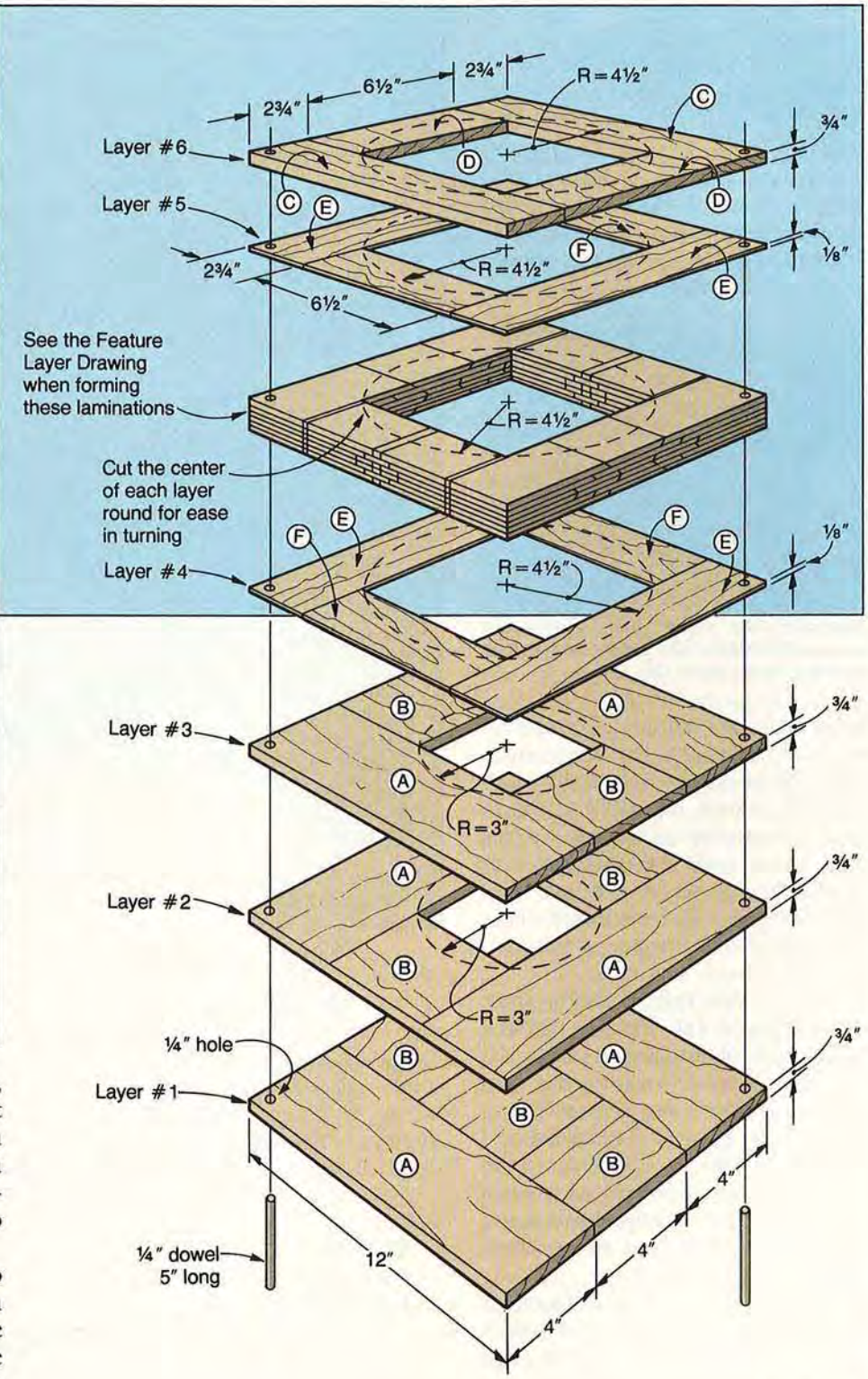


INSPIRED BOWL

Bill of Materials

Part	Initial Size of Pieces T	W	L	Material	Qty.
Layers 1 thru 6					
A	¾"	4"	12"	mahogany	6
B	¾"	4"	4"	mahogany	7
C	¾"	2¾"	12"	mahogany	2
D	¾"	6½"	2¾"	mahogany	2
E	⅛"	2¾"	12"	wenge	4
F	⅛"	2¾"	6½"	wenge	4
Serrated Pattern					
G	¼"	6"	5⅜"	maple	4
H	¼"	6"	4¾"	maple	4
I	¼"	6"	3⅞"	maple	4
J	¼"	6"	2¾"	walnut	2
K	¼"	6"	4"	walnut	2
L	¼"	6"	2¼"	walnut	4
M	¼"	6"	1¾"	cardinal wood	2
Block Pattern					
N	¼"	6"	3⅜"	maple	4
O	¼"	6"	3"	maple	4
P	¼"	6"	2⅝"	maple	4
Q	¼"	6"	½"	walnut	2
R	¼"	6"	1¼"	walnut	2
S	¼"	6"	¾"	walnut	4
T	¼"	6"	½"	cardinal wood	2
U	⅛"	2 15/16"	1½"	wenge	4

Supplies: coated plywood for clamping boards, plywood for auxiliary faceplate, ¼"-diameter dowel stock for guide pins, lacquer sanding sealer, polymerized tung oil, paste wax.



6 To form layers 2 and 3, glue, clamp, and sand the pieces as just described. Note the grain direction shown on the Bowl Lamination Drawing when cutting and clamping. Use the same procedure to form layers 4, 5, and 6.

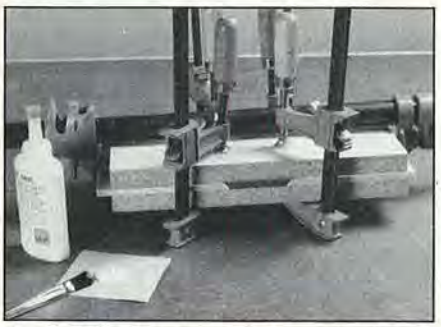
7 As described and shown in Photo E on page 30, and dimensioned on the Bowl Lamination Drawing, use a compass to mark a circle on the inside of each layer except for the

Continued

bottom layer. Cut the circles to shape with a scrollsaw or portable jigsaw. Cutting the inside of the layers round reduces the amount of stock you'll need to remove when turning the inside of the bowl.

NOW, TACKLE THE FEATURE LAYER

1 Fit a miter gauge with an auxiliary fence, and tilt your tablesaw blade 45° from vertical. Cut parts G through M from ¼"-thick stock to the sizes listed in the Bill of Materials. Glue and clamp each of the six individual layers together as shown in the photo *below*.

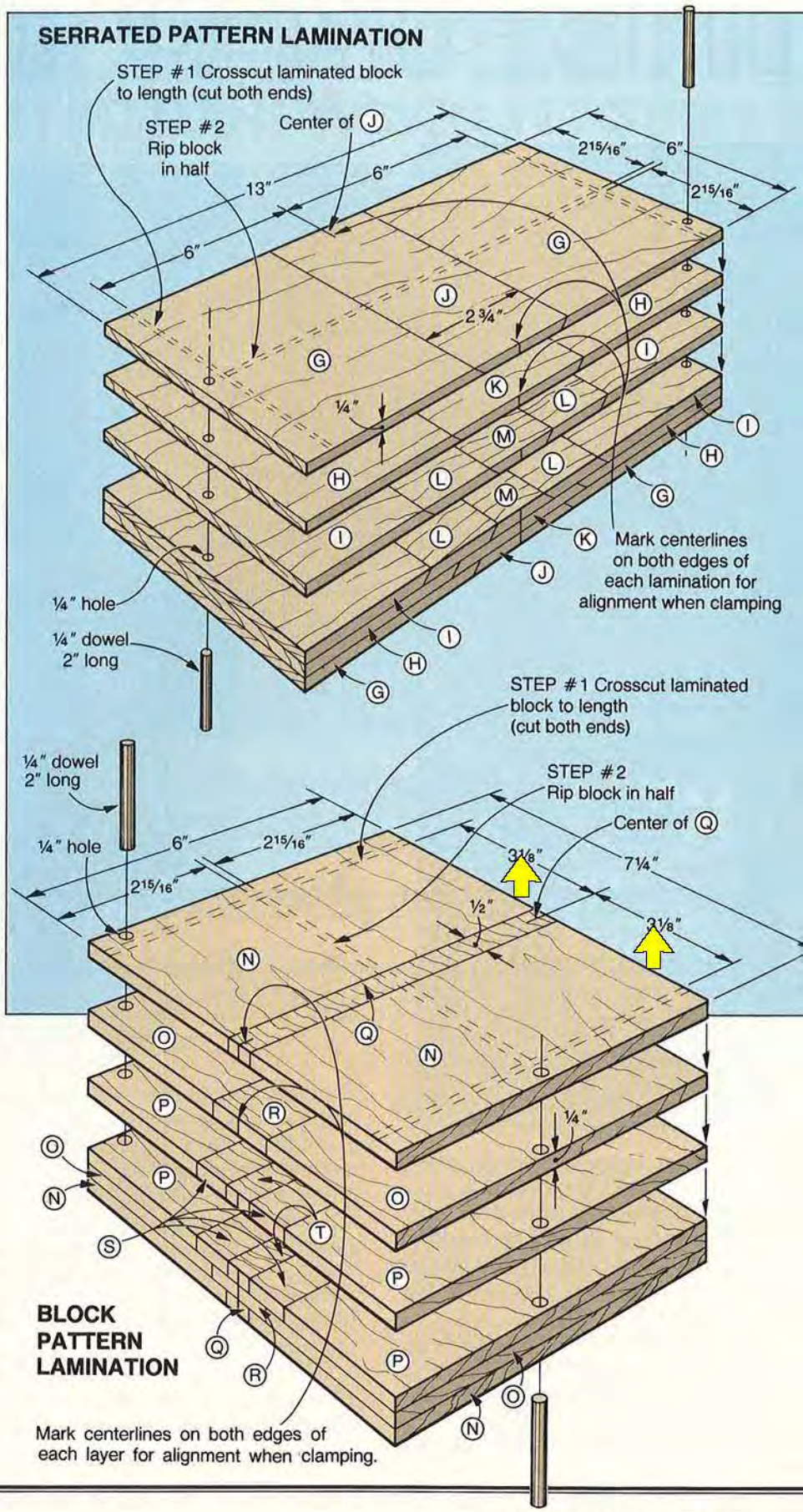


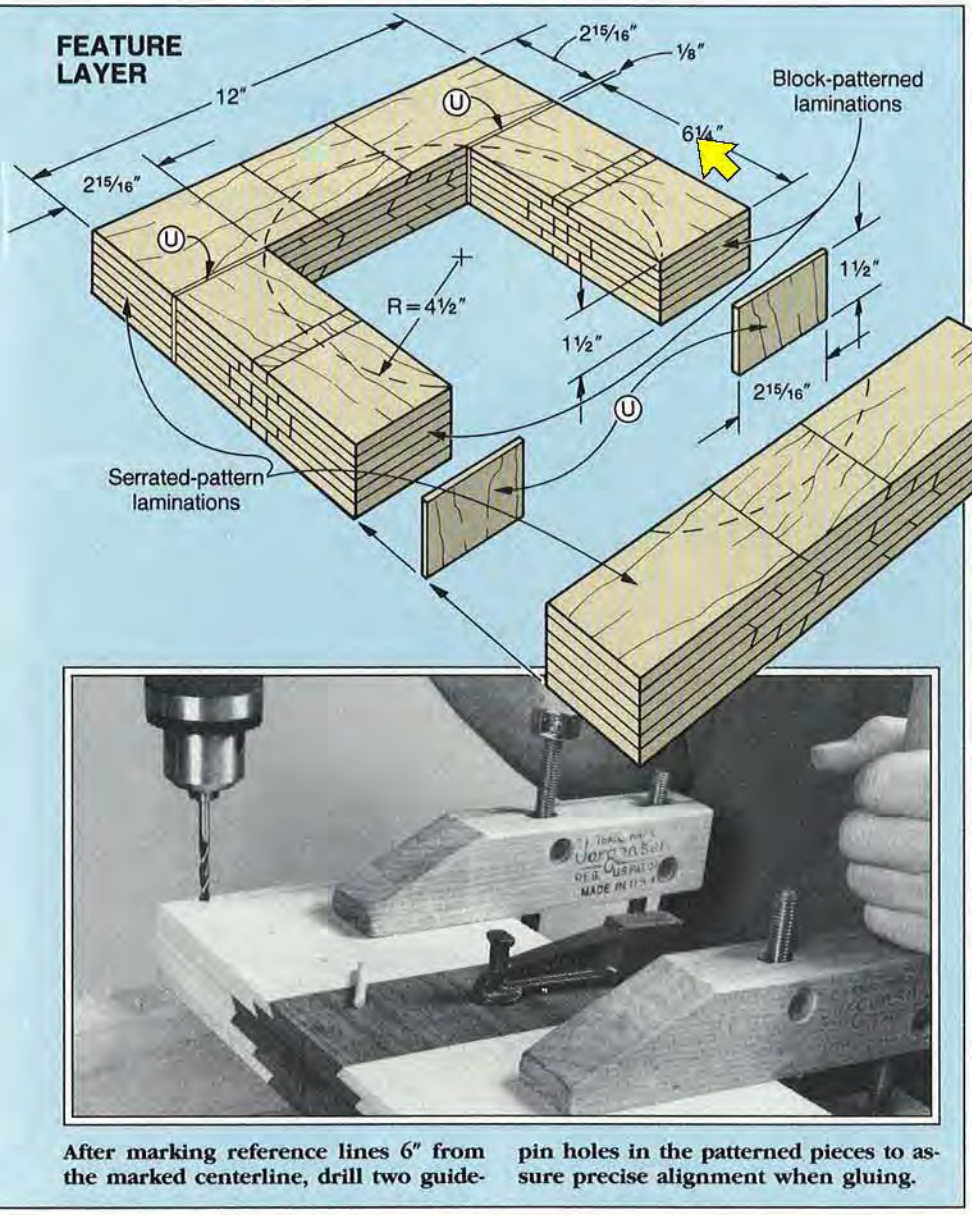
Sandwich the parts being glued and clamped between two pieces of particleboard to keep them flat.

2 Let each lamination dry for about an hour. Then, remove the clamps and lightly sand each layer with 100-grit paper. Be careful not to sand depressions at the glue joints or to round-over the edges or ends of the layers when sanding. (To keep the layers flat, we found that a half-sheet finish sander works better than a palm sander.)

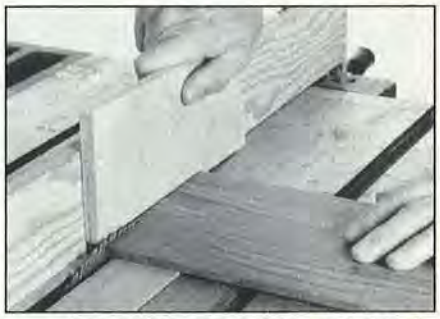
3 Mark a centerline on the top face of each layer, and transfer the line to both front and back edges. (If you have trouble locating the centerlines, refer to our center-finding shop tip on page 18 for assistance.) Align the centerlines and clamp the layers in the arrangement shown on the Serrated Pattern Lamination Drawing. Check that the pattern aligns on both edges.

4 Measure 6" in both directions from the centerline and use a square to mark a line across each end of the stack. Using 3"-wide





After marking reference lines 6" from the marked centerline, drill two guide-pin holes in the patterned pieces to assure precise alignment when gluing.



For safety, use a thin push block when cutting to length the narrow block-pattern pieces.

blocks for support, drill a ¼" guide-pin hole on the outside of each marked line as shown in the photo *above*. Remove the clamps, and cut two ¼"-diameter dowels to 2" long.

5 Spread an even coat of glue on the mating faces of the six layers. Insert the 2" dowels into the ¼" holes to realign the pieces, and clamp together the six layers.

6 Remove the clamps, and trim each end of the lamination where marked in Step 1 on the Serrated Pattern Lamination Drawing. Using Step 2 on the same drawing for reference, rip the block in half.

NEXT, MAKE THE BLOCK-PATTERN LAMINATION

1 Using a thin push block (ours measured less than ½" thick) as shown in the photo *above right,* cut to size parts N through T for the block-pattern lamination. Laminate each layer and then glue and clamp the individual layers to form the block, using the same process just described in steps 1 through 6.

2 Cut four wenge parts (U) to the size listed in the Bill of Materials.

3 Glue and clamp the block-pattern laminations between serrated-pattern laminations with the wenge pieces in place where shown on the drawing at *left*. (We placed the pieces between two clamping boards to keep the faces of all the pieces flush.)

4 Remove the clamps and sand the top and bottom faces of the feature lamination smooth and flush.

HERE'S HOW TO FORM THE BOWL BLANK

1 Align the individual layers in the order shown on the Bowl Lamination Drawing. Once in position, dry-clamp the layers.

2 As you did earlier with the feature layers, drill a pair of guide-pin holes through the dry-clamped assembly where shown on the Bowl Lamination Drawing. Remove the clamps. Next, cut two pieces of ¼" dowel to 5" in length.

3 Spread an even coat of glue on all mating surfaces. Then, clamp the layers together, using the dowel guide pins to realign the pieces. See photo H on page 31 for help.

TURN THE LAMINATED-BOWL BLANK TO SHAPE

1 With a compass, mark a 6" radius centered on the bottom of the bowl blank. Next, mark a 6¼" radius on a piece of ¾" plywood (we prefer Baltic birch) for the auxiliary faceplate. Bandsaw the bowl blank and auxiliary faceplate to shape.

2 Fasten the auxiliary faceplate to your 6" metal faceplate. Turn the auxiliary faceplate to a 6" diameter. Center and glue the bowl blank to the auxiliary faceplate. Let the project stand for 24 hours.

Continued on page 74

COAXING A

CALIFORNIAN T.C. MacMICHAEL MIXES

Homemade finishes frequently stir up thoughts of secret ingredients and images of bubble, bubble, toil, and trouble. But, in fact, these finishes often outperform commercial concoctions. Here, San Diego furnituremaker and educator T.C. MacMichael demystifies his finishing process.

When T.C. MacMichael studied furniture design at Central Washington University in the mid-70s, he experimented with various finishes. "I didn't like surface finishes such as lacquer and varnish—I felt I had to look through them to see the wood," he explains. "Oil finishes alone lacked the luminous quality I like. But, by working an oil and wax mixture into the wood, I achieved exactly the right finish."

T.C.'s finishing process includes three separate coats of Daly's Seafin Teak Oil followed by two coats of a teak oil and beeswax mixture. Although each step requires a great deal of handwork, the results reflect the effort.

The finished piece not only has visual appeal, but it's a delight to touch. And, T.C.'s finish stands up to water and alcohol. In fact, this craftsman has so much confidence in his finishing process that he not only applies it to all his custom furniture, he also *teaches* the technique at San Diego State University, where he heads the furniture design program.

SETTING UP FOR TEAK OIL

According to Kyle Peterson, factory sales representative for Daly's, their SeaFin Teak Oil contains tung oil, phenolic (plastic) resins, and dryers. Daly chemists formulated the finish for marine use. Today, though, it is widely applied to furniture, and for good reason. T.C. has discovered that the teak oil he uses protects the natural color of wood—such as the orange of padauk that traditionally darkens rather quickly—far longer than any other oil.

T.C. has the following supplies on hand when he starts a finishing project, see photo, *above right*: plenty of paper towels, 0000 steel wool, cheese cloth, clean cotton cloths, 400–600-grit wet-dry sandpaper, SeaFin Teak Oil, and beeswax. "The beeswax works easier than carnuba, and the results are equal," T.C. notes.

STEP-BY-STEP TO A GLOWING FINISH

1 In preparation for finishing, T.C. sands all surfaces smooth with 220-grit paper, then blows off the sanding dust with compressed air or wipes it clean with a tack cloth. He next uses a soft cloth to heavily flood the surface with the first of three coats of plain teak oil. While the wood is wet, T.C. sands with the grain with 400-grit wet/dry paper.

2 After a five-minute wait, T.C. removes all traces of oil on the wood's surface with soft cloths or paper towels. "When I finish porous woods, such as oak, droplets of oil will continue to come up for an hour or longer. These all have to be wiped off," advises T.C.

3 The teak oil takes a minimum of 12 hours for the first heavy coat to dry. When it is dry, T.C. rubs the wood with 0000 steel wool, also with the grain. Next comes a thorough cleaning of the wood with air or a tack cloth.

The procedure for the two subsequent coats follows that of the first, except that T.C. relies on 500-grit wet/dry paper to apply the second coat and 600-grit the third. "The fine sandpaper removes the tiny wood-grain hairs that the oil raises," notes T.C. "The paper also 'pushes' the oil into the grain and fills the pores with fine wood particles at the same time."

4 Because the oil/beeswax mixture is flammable, T.C. uses a doubleboiler to keep it away from direct heat. In this arrangement, T.C. heats the teak oil to between 120–140° F. (read with a candy thermometer) and adds beeswax at the rate of ¾-ounce (dry weight)

Print this article

GLOW FROM WOOD

OIL, BEESWAX, AND ELBOW GREASE

◀ **For his homemade finish, T.C. requires paper towels, 0000 steel wool, cheese cloth, cotton cloths, 400–600-grit wet-dry sandpaper, SeaFin Teak Oil, and a block of beeswax.**

▼ **A final pass down the grain with a cheesecloth pad removes excess oil and beeswax from the wood. Says T.C., "For this finish, you don't need any special equipment."**

If you or one of your friends use a finishing system you'd like to crow about, why not drop us a line? Write to: "In Search of the Perfect Finish," 1716 Locust Street, Des Moines IA 50336. Who knows, maybe you'll be featured in the next article.

to 8 ounces of oil. Frequent stirring blends the mix, but it's the one-day curing time that really does the trick. Says T.C., "The standing time, and the subsequent reheating before use, allows the mixture to blend much better than any simple stirring I could do. It's like the taste of stew the second day—much improved with age."

5 T.C. applies his hot oil/wax solution with a soft cotton cloth. He works on only a few feet of surface at a time.

6 After T.C. covers the entire project, he goes back over the wood cross-grain with cheesecloth pads to remove any unabsorbed mixture. To keep a fresh cloth surface working, he frequently turns the pads inside-out. A final pass goes with the grain.

T.C. repeats the whole process after the first oil/wax coat has completely dried (up to 24 hours). To complete his finish, T.C. adds two coats of a good quality paste wax, such as Minwax, and buffs.

"The final finish has a glow you can't obtain by simply putting paste wax over oil," the craftsman comments. "Although this process is lengthy, you don't need any special equipment. And, if the finish gets damaged, you can renew it easily with two coats of the oil/wax mix. Occasional buffing with a soft cloth, and a coat of paste wax once a year, is all the maintenance normally required."

Buying Guide

- **SeaFin Teak Oil.** Daly's, 3525 Stoneway No., Seattle , WA 98103. Call 800-521-0714, ext. 276 for nearest dealer. About $9 per quart.
- **Beeswax.** At most hardware stores, about $1.50 per 2x3" block.
- **Cabinetmaker's Paste Finishing Wax.** T.C. has had equal results with several brands.

Written and photographed by Gary A. Zeff

SCROLLSAWS UNDER $150

ARE THEY A GOOD VALUE FOR THE MONEY?

If you occasionally need a scrollsaw, but haven't bought one because you think a high-quality machine costs a lot, stay tuned. Because of low-cost Taiwanese machines and some good old-fashioned American competition, you now can buy a well-made scrollsaw at a very down-to-earth price.

▲ The sleeve bearing holding the arm to the casting of the AMT model 4600 on the *left* supports the arm on both sides as shown,

▲ The AMT model 4600 shown *above* has a pin-type blade holder, but you can install a pivoting blade clamping device that holds standard blades and comes with every unit.

Five years ago, you had to spend at least $200 to buy a scrollsaw capable of making high-quality cuts. Then, American Machine and Tool (AMT) introduced its 15" model 4390 at a price of $149 and the market changed overnight. The Taiwan-made AMT saw resembled the Hegner Multimax 2, a finely machined German-made scrollsaw that performed exceptionally well but listed at $894. Today, you can buy this Hegner machine for less than $600. In the last two years, other companies have introduced similar versions of the AMT model, bringing down the price of the machines to about $130. The three models we tested were nearly identical, and it's no coincidence, since all of them originate from the same Rexon plant in Taiwan. We also put AMT's new 15½" machine to the test—a beefier, slightly more expensive model that may lead the way into the next round of inexpensive scrollsaw wars.

LOW PRICE, BUT SOLID PERFORMANCE

All these machines have a sound scrollsaw principle behind them: constant-tension parallel arm construction. This design produces fast, smooth cuts with less blade breakage than rigid-arm scrollsaws for two main reasons.

First, the parallel arms pull evenly on the blade in both the up and down motions. Rigid-arm scrollsaws, which pull the blade only in the downstroke and rely on a spring to return the blade, create more blade fatigue and breakage.

Second, the parallel arms pull the blade in a motion that brings it slightly forward in the downstroke, allowing it to cut more quickly than a rigid-arm saw. But, fast cuts don't mean much if they're not smooth, and we found that these saws also yield very smooth cuts.

SHOULD YOU BUY ONE?

If you only use a scrollsaw for small projects on a sporadic basis, these saws represent a good value. On the other hand, if you do a lot of scrollwork, or intricate jobs involving metal materials or veneers, you'll be better off with a more-expensive variable-speed machine.

For their low price, these saws also require you to make a few more trade-offs in ease of use and quality of construction. Changing blades proved to be time-consuming, because we had to secure both blade clamps in the upper arm holder before inserting the blade and tightening the clamp screw. These machines had the lower-quality castings typical of Taiwanese machines, but this didn't affect cuts during our tests. All the machines share the same plastic guard that proved to be more irritating than protective, while providing no control over the workpiece.

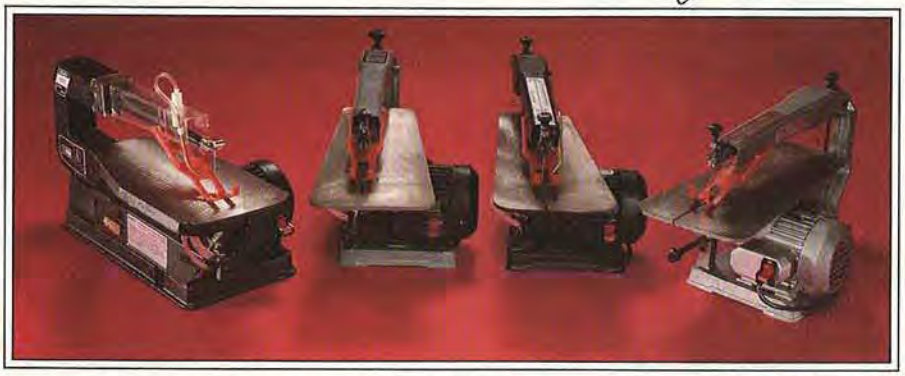
THE MODELS: WHAT WE FOUND

All of the machines performed to our expectations. However, we appreciate the extra heft of the AMT model 4600 (it weighs 6½ pounds more than the others) and the added support surrounding its arms. As shown in the photo *above top,* a piece of casting supports the arm's

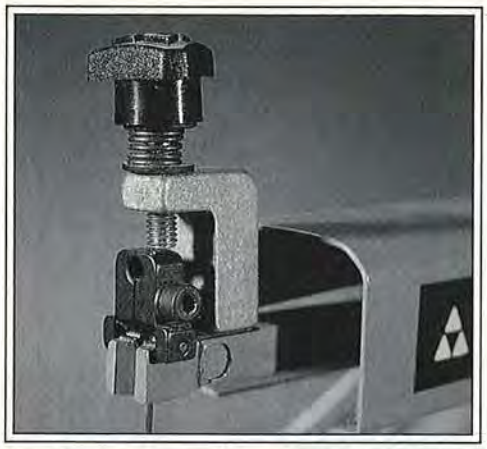
whereas the similar bearing on the 15" models such as the Delta on the *right* receives support on only one side.

"The AMT 15½" scrollsaw cuts as well as any fixed-speed scrollsaw I've used. The 15" models work well, but with a little more vibration."

J. R. Cosgrove Design Editor



▲ We took a look at four scrollsaws representing two types of inexpensive machines. From *left*, AMT's 15½" model 4600, and these nearly identical 15" machines: Delta, Penn State, and Total Shop.



▲ When using a clamp-type holder such as the one shown *above*, make sure you leave a 1/16" gap between the locking screw and clamp to prevent excessive blade breakage.

sleeve bearing on both sides, giving this bearing greater stability. The saw sells for $169, but you can pick out $50 worth of free merchandise from the AMT catalog with every purchase.

Among the 15" machines, you'll need to make a purchase decision based on price, warranty, dealer network (if any), and any specials offered at the time. Warranties range from 10 to 30 days for full refunds, from 1 to 2 years for the motor, and from 1 to 10 years for the machine excluding the motor.

SCROLLSAWS UNDER $150: TAKE YOUR CHOICE

MANUFACTURER AND MODEL	THROAT DEPTH (INCHES)	STROKE LENGTH (INCHES)	STROKES PER MINUTE	MAX. CUTTING DEPTH (INCHES)	TABLE SIZE (INCHES)	TABLE BEVEL TO LEFT	SPEED CONTROL (Y, N)	Motor TYPE[2]	Motor AMPS	Motor MOTOR	Bearings[3] ARM PIVOTS	Bearings[3] TIE ROD TO MOTOR	WEIGHT (LB.)	COUNTRY OF ORIGIN	PRICE
Various[1]	15	¾	1,725	2	17×7⅞	45°	N	TEFC	1.4	B	S	B	37.5	Taiwan	$130*
AMT 4600	15½	¾	1,725	2	14¾×7⅞	45°	N	TEFC	1.4	B	S	B	44	Taiwan	169**

1. Similar machines sold by AMT, Delta, Grizzly, Jet, Penn State, and Total Shop

2. TEFC = Totally enclosed, fan cooled

3. (S) Sleeve bearings
(B) Ball bearings

(*) Prices vary
(**) Includes $50 of free merchandise

MANUFACTURERS LIST:

American Machine & Tool Co.
Fourth Avenue and Spring Street
Royersford, PA 19468
215/948-0400

Delta International Machinery Corporation
246 Alpha Drive
Pittsburgh, PA 15238
800-438-2486

Grizzly Imports
P.O. Box 2069
Billingham, WA 98227
206/647-0801

Jet Equipment & Tools
1901 Jefferson Avenue
P.O. Box 1477
Tacoma, WA 98402
800-426-8402

Penn State Industries
2850 Comly Road
Philadelphia, PA 19154
215/676-7609

Total Shop
P.O. Box 16297
Greenville, SC 29606
800-845-9356

Photographs: Hopkins Associates

Print this article

"It is a dog-eat-dog world"

TALES OF THE TIMBER TRADE

Too quickly, the canoe glided out of the river's blackness to scrape the bank. From its prow, a figure rose, then alighted on the dank sand. Other figures, darker than even the jungle night, followed the first.

Yards back from the river, the man clad in khaki paused, unsure. Pulling on his slouch hat, he studied them.

Were these the men he'd been promised to lead him? His right hand palmed his revolver, just for assurance. In his years of searching the global jungles, he'd only fired it as a last resort. Like the time up from Brazzaville, on the Congo. In the end, he'd gotten out the treasured ebony. But it wasn't, as they say, a fun trip. With luck, he could trust these men, and he'd have rare wood to deal.

Despite the thrills and danger home woodworkers might associate with the trade in expensive woods of the world, today's import buyers seeking exotic stock rarely resemble movie adventurer Indiana Jones. Nor do they regularly run reptile-ridden rivers pursuing the trail of rare logs. Yet, adventure and the unexpected still stalk the world's wood markets.

STEP INTO THE WORLD OF THE EXOTIC TIMBER TRADE

"One time, in Guatemala looking for rosewood, mahogany, and plantation teak, my contact had a pistol stuck in his belt and an Uzi machinegun in the back seat of the car," recalls Bud Mikelonis, 53, manager of Frank Paxton Lumber Company's New Orleans facility. "Down there, *bandidos* roam the jungles. If you're traveling to a sawmill by vehicle—they think you might be carrying the payroll. My escort said he had shot eight or nine men! It came to mind that maybe I shouldn't have gone on that trip."

Bud has sought hardwood in Central and South America for three decades. Most of his travels came when he worked for a company specializing in exotic woods. Now, Bud only takes two trips a year to Brazil and Guatemala to buy species such as mahogany, Spanish cedar, rosewood, and interesting exotics from respected dealers in the larger cities. He still gets occasional rushes of adrenaline, though.

"A few years ago, I was in the interior of the Amazon, watching the Indians fell timber," recalls Bud. "By the way, that's when the exotics are found—when other trees are being cut. Anyway, I saw them drop some huge trees they called *jatoba*. The Indians drank the sap, saying it was medicine. They wanted me to give it a try, but I could see they were getting intoxicated, so I said, 'No way.' I didn't want to stay there, hooked on jungle juice!"

In the Port of New Orleans, a freighter unloads imported wood located and purchased by a buyer in a distant land. Often, the trail of such exotics as ebony, rosewood, wenge, and others from around the globe leads to adventure, chicanery, and frustration.

Bud looked at the wood, however, and brought samples back. Now, he sells "Brazilian cherry" as a popular hardwood flooring.

English-born Geoff Dodd, 49, carries the title of a senior vice president at Craig Lumber Corporation in Memphis. Of his 30 years in the wood business, he spent seven in Africa as an import wood buyer.

Geoff remembers a colleague's close call. "The chap barely escaped the bloodbath of an African revolution. With gunfire all around and flames lighting up the night, he lashed some logs together and floated down river to safety. The raft could have been made of ebony, it mattered little to him at the time."

Although buying wood on the scene can result in some surprising turn of events, dealing in some countries only proves frustrating due to the delays involved.

MAÑANA MAY BE SOON ENOUGH FOR MOST

"It's not unusual to have some species delivered 15 months late, " Geoff says. "In Africa, the mills play up severe weather conditions as excuses. Granted, they have their problems working in the jungle, such as lack of transportation. But they don't understand maintenance—their mills go to heck, most of their roadways never get repaired in time. That is, where there *are* roads!" Geoff chuckles.

"In Zaire, the logs have to come maybe 1,500 miles down the Congo River to the sawmill. When the river is low, the logs get hung up until it rains."

When the order does arrive in port, there's likely to be another hitch. In some places, according to the globe-trotting Englishman, even the government interferes.

"It's called 'gazumping.' When the goods finally arrive in port, the government body decides that the minimum price should be 'X' for a certain species," says Geoff. "They try to make the seller get that price. It makes a contract a valueless piece of paper."

IN ALL LANGUAGES, IT'S BUYER BEWARE

Unlike shopping at your favorite retail store, transactions to buy hardwoods in a foreign country aren't usually based on trust. For instance, many world governments pass laws forbidding the export of goods not paid for in advance. To comply, wood buyers often rely on a "letter of credit." A seller presents the letter of credit given to him by the buyer, along with documents evidencing that the goods were shipped, to the local bank. He gets his money before the buyer receives the goods.

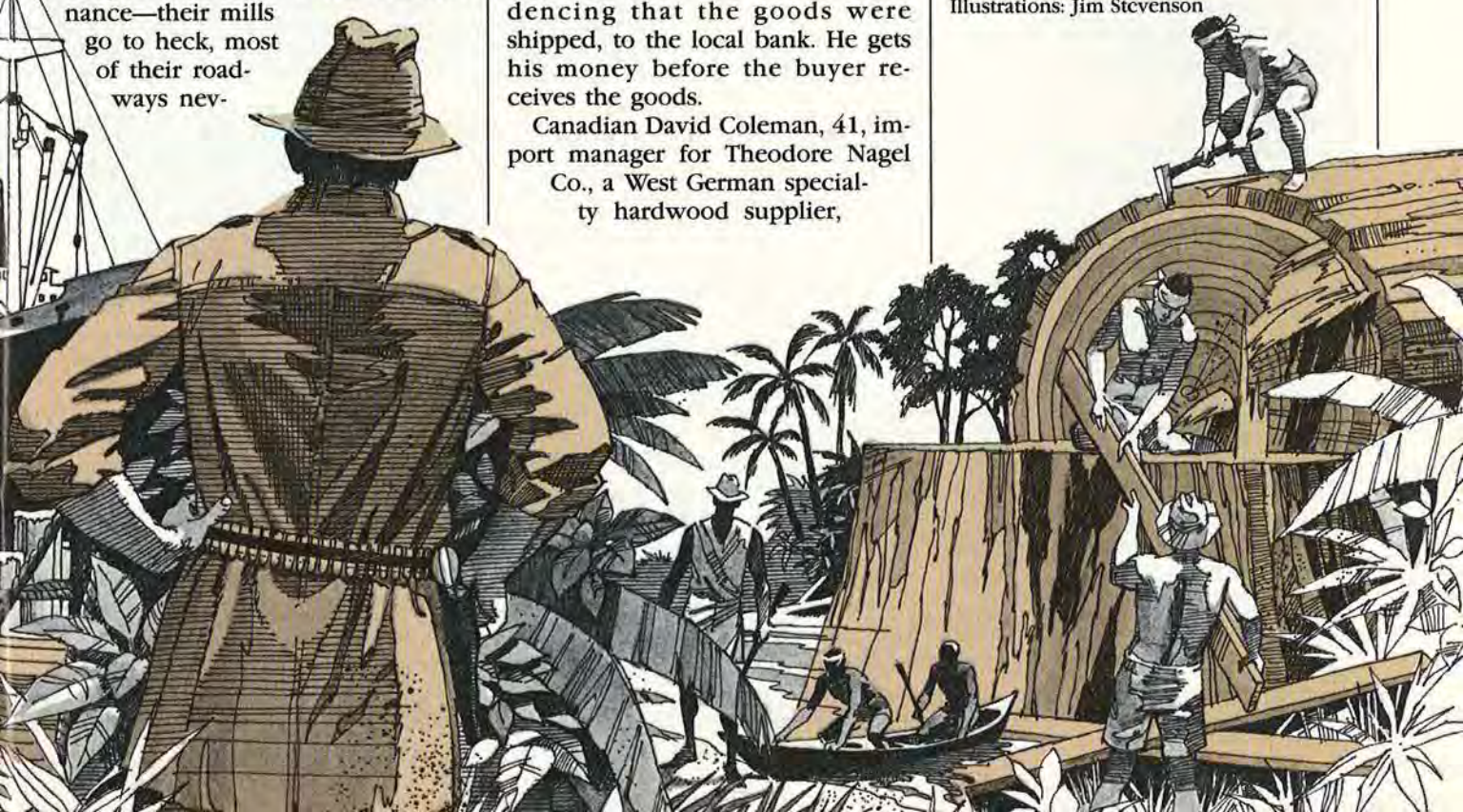
Canadian David Coleman, 41, import manager for Theodore Nagel Co., a West German specialty hardwood supplier, recalls an unwary wood buyer that came away empty-handed. "A company bought a container [semi-trailer load] of rosewood based on samples shown them and paid for it with a letter of credit for about $50,000," David relates. "But, the seller had bribed the port authorities. The container was actually filled with sandbags."

David bought wood for 16 years, primarily in Indonesia, and heard many a story of international chicanery. "I know of one company that bought a large amount of Indian rosewood. Unfortunately, when they went to kiln-dry it, they discovered that the boards were all sapwood that had been dyed red!"

Experienced in three continents, Bud Mikelonis, Geoff Dodd, and David Coleman agree that the most success comes from dealing with men of integrity. In this belief, they have followed the advice given by a lumberman of an earlier time:

"Granted that there are many honorable men everywhere, the fact remains that in international commerce, it is a dog-eat-dog world."
—Floyd Miller (1904–1978), lumber buyer, Frank Paxton Lumber Co., Kansas City.

Written by Peter J. Stephano
Photograph: Richard Mansur
Illustrations: Jim Stevenson



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ALL DECKED OUT WITH FILIGREE

PLANT STAND

We were amazed by the laser-cut filigree samples we recently received. But, how could we use this product, with its scrollsaw-like pattern, in a furniture project? Then, Jim Boelling, our project builder, starting experimenting with it and came up with this classic-looking stand. We've placed plants on it and we've used it for displaying items. Now, what are you going to do with yours?

SHAPING UP YOUR LEGS

1 Cut the legs (A) to the size listed in the Bill of Materials. We used 1 1/16"-thick birch (commonly called 5/4 stock) for the legs. If you have trouble locating stock this size, you can laminate ¾" stock face to face, and then resaw or plane the laminations to the correct thickness. Be sure to plane or resaw an equal amount off each face so the glue line remains centered.

2 Rout a 3/16" round-over along all four edges of each leg. (We did this on a table-mounted router fitted with a fence to avoid routing the top and bottom ends of the legs—the ends need to remain flat.)

3 Sand a slight round-over on the bottom of each leg to prevent the leg from later snagging the carpet. Now, sand each leg smooth.

CONSTRUCT THE FOUR APRON FRAMES

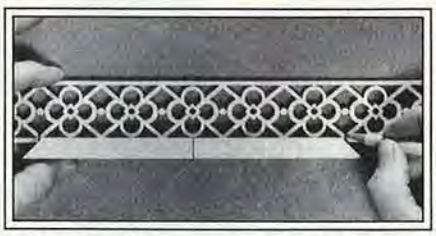
1 Crosscut a ¾"-thick piece of birch to 24" in length. Now, rip four ½"-wide strips from the 24"-long piece. Each strip should measure ½ × ¾ × 24" for the apron-frame members (B, C).

2 To form the ½" bullnose, rout ¼" round-overs on the top and bottom corners of one edge of each 24" strip. See the Rail Detail accompanying the Apron Frame Drawing for details.

3 Cut a ⅛" groove ⅛" deep along each 24"-long strip where shown in the Rail Detail to house the laser-cut filigree. Sand the four strips.

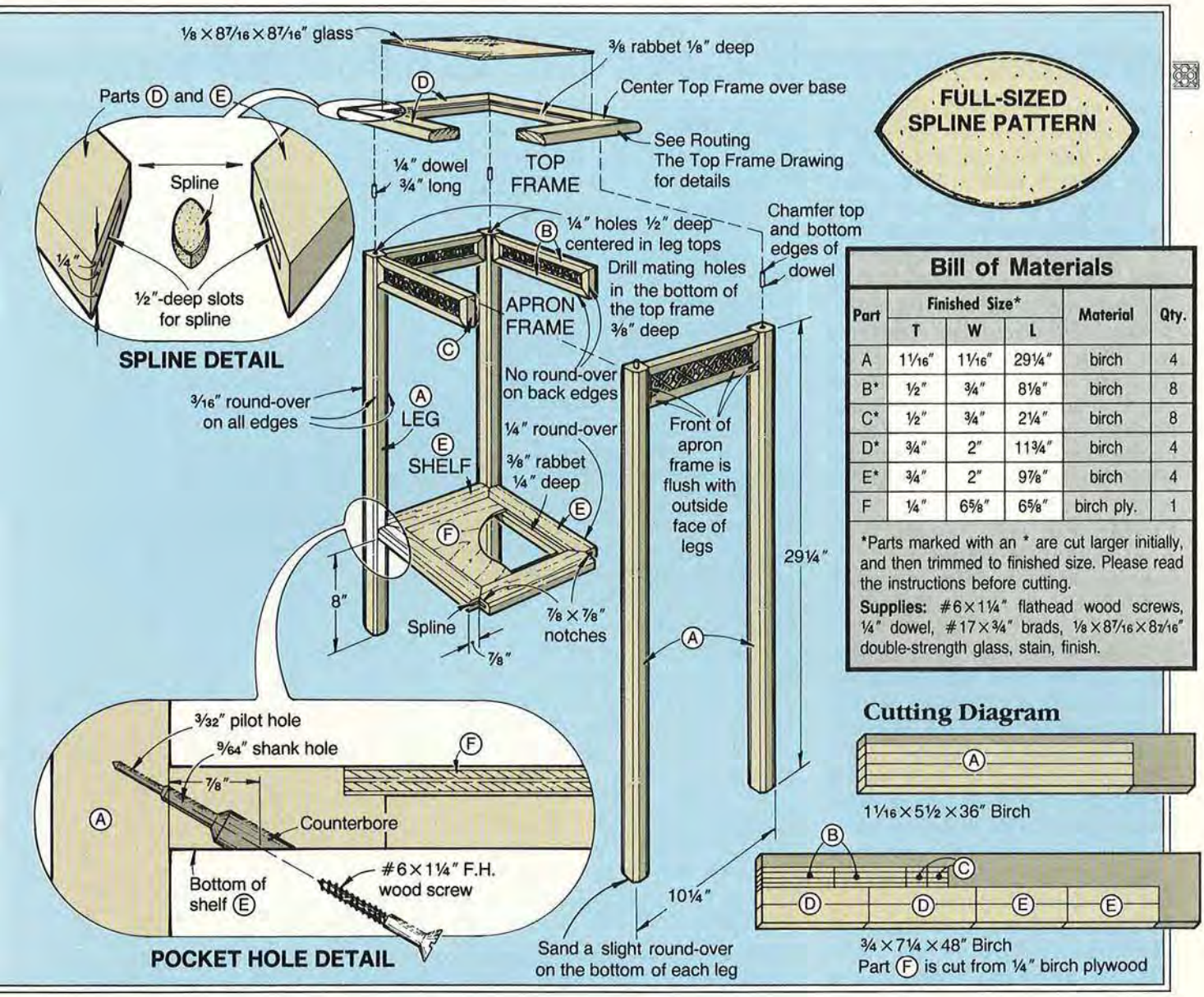
4 Set a stop for consistent lengths, and miter-cut eight rails (B) to length from the 24"-long strips. Reposition the stop and cut eight stiles (C) to length. (For minimum waste, we cut two rails and two stiles from each strip.)

5 Cut the filigree to length, being sure to center the laser-cut pattern in each apron frame. To do this, start by marking a centerline across one frame rail (B). Insert the filigree into the ⅛" groove in the rail, and center one of the filigree circles directly over the marked line as shown in the photo *above right*. Mark the ends of the filigree where shown on the photo, and crosscut the four filigree strips to length. (Our strips measured 7⅜" long.)



Center the filigree over the marked centerline, and mark cut lines for matching patterns at each end.

6 Tape together (no glue just yet) each apron frame (with the filigree in place in the grooved opening) to check the fit of all the pieces. (When clamping small parts such as this, we found that masking tape works better than clamps.) Remove the tape, and trim any parts if necessary. Glue and tape each frame,


1/8 × 8 7/16 × 8 7/16" glass
3/8 rabbet 1/8" deep
Parts D and E
Center Top Frame over base
See Routing The Top Frame Drawing for details
1/4" dowel 3/4" long
TOP FRAME
Spline
1/4"
1/2"-deep slots for spline
SPLINE DETAIL
1/4" holes 1/2" deep centered in leg tops
Drill mating holes in the bottom of the top frame 3/8" deep
Chamfer top and bottom edges of dowel
APRON FRAME
No round-over on back edges
3/16" round-over on all edges
LEG
SHELF
1/4" round-over
3/8" rabbet 1/4" deep
Front of apron frame is flush with outside face of legs
29 1/4"
8"
Spline
7/8 × 7/8" notches
7/8"
3/32" pilot hole
9/64" shank hole
7/8"
Counterbore
Bottom of shelf E
#6 × 1 1/4" F.H. wood screw
POCKET HOLE DETAIL
10 1/4"
Sand a slight round-over on the bottom of each leg
FULL-SIZED SPLINE PATTERN
Cutting Diagram
1 1/16 × 5 1/2 × 36" Birch
3/4 × 7 1/4 × 48" Birch
Part F is cut from 1/4" birch plywood

Bill of Materials

Part	Finished Size*			Material	Qty.
	T	W	L		
A	1 1/16"	1 1/16"	29 1/4"	birch	4
B*	1/2"	3/4"	8 1/8"	birch	8
C*	1/2"	3/4"	2 1/4"	birch	8
D*	3/4"	2"	11 3/4"	birch	4
E*	3/4"	2"	9 7/8"	birch	4
F	1/4"	6 5/8"	6 5/8"	birch ply.	1

*Parts marked with an * are cut larger initially, and then trimmed to finished size. Please read the instructions before cutting.

Supplies: #6 × 1 1/4" flathead wood screws, 1/4" dowel, #17 × 3/4" brads, 1/8 × 8 7/16 × 8 7/16" double-strength glass, stain, finish.

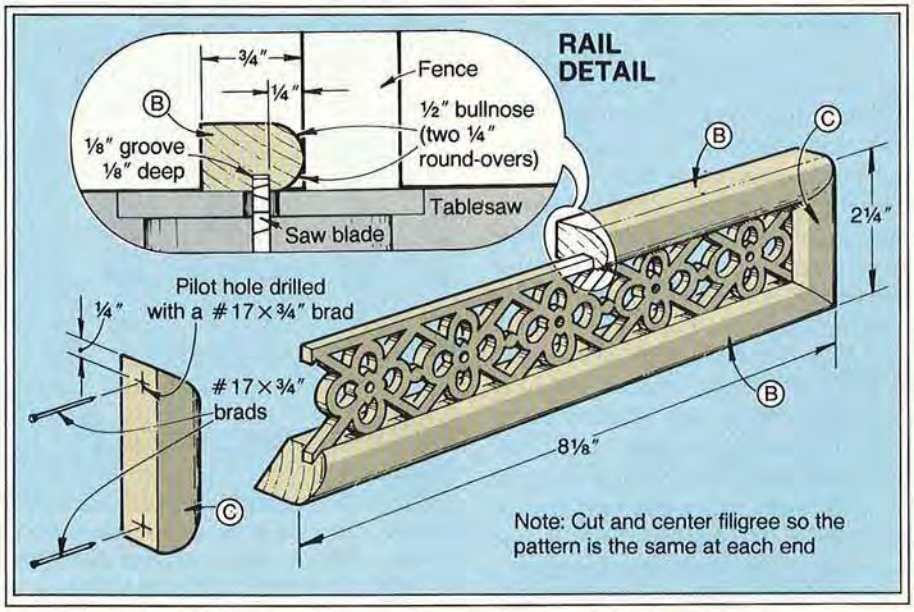
checking for square and tight joints. Wipe off any excess glue with a damp cloth.

7 Snip the head end off a #17 × 3/4" brad, and chuck it into a portable drill. Now, use the brad "bit" to drill pilot holes where shown on the Apron Frame Drawing. Finally, drive #17 × 3/4" brads into the pilot holes to strengthen the miter joints.

ASSEMBLE THE LEGS AND APRON FRAMES

1 Cut two pieces of scrap stock to the same length as the apron rails.

2 As shown in photo A (next page), lay the legs and apron frame facedown. Glue and clamp the pieces, using the scrap piece at the opposite end of the legs as a spacer.



Continued

Check that the top of the apron frame is flush with the top ends of the legs and that the front of the apron frame is flush with the front of the legs. (We found that laying the pieces facedown helped keep the front edges flush.) Repeat the process with the two remaining legs and one of the apron frames.

3 Glue and clamp the remaining two apron frames between the two leg-frame assemblies. Check that the tops and fronts are flush, and that the assembly is square. Immediately wipe off any excess glue with a damp cloth.

BUILD THE TOP FRAME AND BOTTOM SHELF

1 From ¾"-thick birch stock, rip and crosscut two strips 2" wide by 48" long.

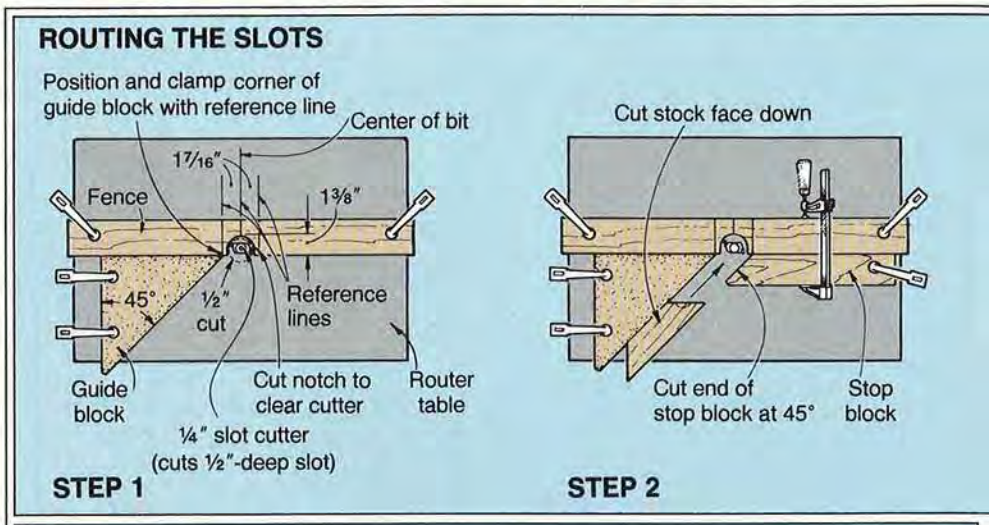
2 Miter-cut the four top members (D) and the four shelf members (E) to length, setting stops for consistent lengths. (Cut two Ds and two Es from each 48" strip.)

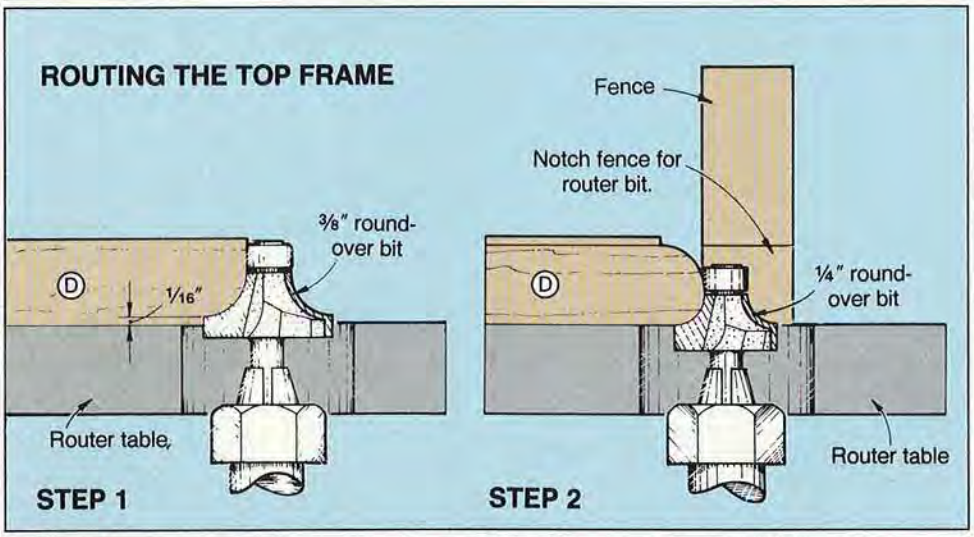
3 To form the guide block shown in Step 1 on the three-step drawing *above right*, cut an 8"-square piece of ¾"-thick scrap stock. Now, draw a diagonal line (corner to corner), and cut the square in half.

4 To make the stop block shown in Step 2, cut a piece of ¾" stock to 2" wide by 11" long. Miter-cut one end at a 45°.

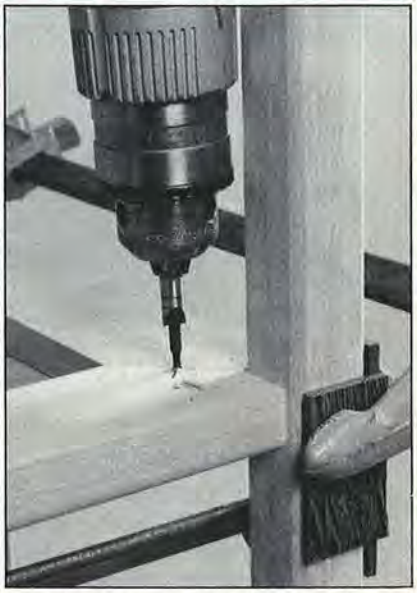
5 Mount a ¼" slot cutter and fence to your table-mounted router. Raise the slot cutter to cut a slot centered on the edge of the ¾" stock. Position the router-table fence so the slot cutter bearing is flush with the front face of the fence where shown in Step 1. Finally, mark the three reference lines on the fence where dimensioned in Step 1 on Routing the Slots Drawing.

6 Clamp the guide block and stop block to the router table, aligning the pieces with the marked reference lines where shown in Step 2. Cut a test strip of ¾"-thick stock to 2" wide, and miter-cut one end at 45°. Cut a ¼" slot ½" deep in the mitered end of the test strip. Check that the slot is centered from left to

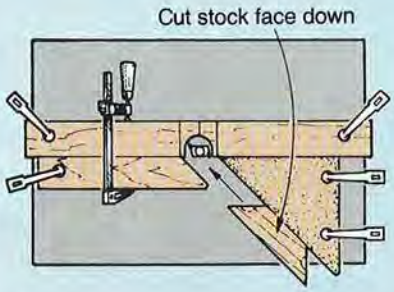




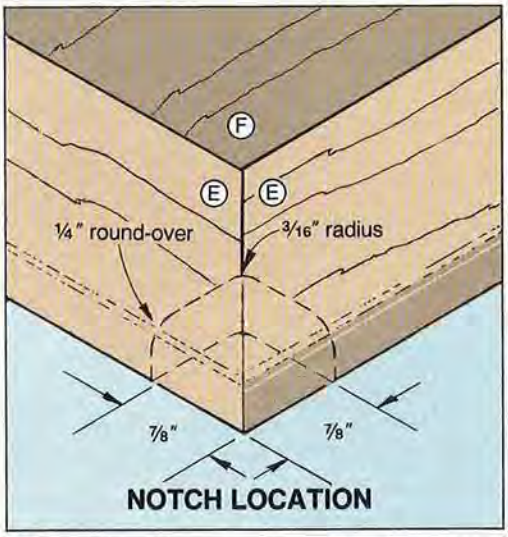
Glue and clamp an apron frame between two legs, using a spacer to keep the legs parallel. Check the assembly for square.



Mark a centerpoint ⅞" from the notch on the miter-joint line, and drill ⅛" deep.



STEP 3



NOTCH LOCATION

Angle the drill and drill a counterbored hole through the shelf and into the plant stand leg.

right and top to bottom as shown on the Spline Detail accompanying the Exploded-View Drawing. Make adjustments as necessary. Cut a slot on one end of each birch frame member (D, E) where shown in Step 2 of the drawing at *left*. For flush-fitting joints, keep the same face down and rout the opposite end of each frame member where shown in Step 3.

7 Using the full-sized spline drawing as a guide, mark and cut one spline to shape from ¼" hardboard. Test-fit (no glue) the spline between two frame members. Adjust the spline if necessary. Now, using this first spline as a template, mark and cut 7 more splines to shape. Sand a slight chamfer along the top and bottom edges of each spline.

8 Dry-clamp the top frame together to check for square and tight-fitting joints. Trim if necessary. Then, glue and clamp the top frame pieces together, checking for square. Remove the clamps, and sand the frame smooth. Repeat the process to form the shelf.

9 Now, following the two-step drawing at *left*, rout the top and bottom edges of the top frame.

10 Rout a ¼" round-over along the top edges of the shelf. Switch to a rabbeting bit, and rout a ⅜" rabbet ¼" deep along the top inside edges of the shelf frame. Next, reset the depth of the cut, and rout a ⅜" rabbet ⅛" deep into the top inside edge of the top frame.

11 Square the inside corners of the shelf frame and top frame with a chisel. Cut a piece of ¼" birch plywood (F) to fit the rabbeted recess in the shelf. Glue and clamp the plywood panel in the shelf. Later, sand smooth, being careful not to sand through the thin veneer on the plywood panel.

12 Using a square, mark a ⅞×⅞" notch on each corner of the bottom side of the shelf. Then, mark a 3/16" radius on the inside corner of each notch where shown on the Notch Drawing. (We used the end of a ⅜" dowel to mark the radius.) Cut the notches to shape.

ATTACH THE SHELF AND TOP TO THE LEGS

1 Turn the plant stand upside down. Make a mark on each leg 8" from the bottom end of each leg. Position the shelf so that the bottom face of the shelf aligns with the marked lines. Clamp the shelf (also upside down) in position as shown in the photo B. Check that the shelf is flush with the marked lines.

2 Using the Pocket Hole Detail accompanying the Exploded-View Drawing as a guide, mark an X on the miter joint ⅞" from the inside corner of each notch. To start the pocket hole, drill straight down ⅛" as shown in photo B. (We used a Stanley 1"×#6 Screw Sink).

3 Tilt the drill, and drill into the leg (A) as shown in the photo C. Install the screw. Repeat the drilling and screwing operation at each corner. Remove the clamps.

4 Mark diagonals and drill ¼" holes ½" deep into the top end of each leg. Place a ¼" dowel center in each hole. Center the top frame on the legs, and press down to transfer the dowel-hole centers to the bottom side of the top frame. Drill ¼" holes ⅜" deep into the bottom face of the top frame where marked.

5 Cut four ¼" dowels to ¾" in length. Sand a chamfer on each end of each dowel. Glue and dowel the top frame to the leg assembly. Immediately remove any excess glue.

SAND AND FINISH

1 Finish-sand the entire stand and apply the stain. Brush on two coats of clear finish.

2 Take the stand to a glass dealer, and order the glass top.

BUYING GUIDE

- **Laser-cut filigree.** ⅛"-thick, white maple ply with a poplar core, 36" long. Catalog no. FIL8-WD, $13.95 ppd. Constantine's, 2050 Eastchester Rd., Bronx, NY 10461. Or, call 800-223-8087 to order.

Produced by Marlen Kemmet
Project Design: Jim Boelling
Photographs: Jim Kascoutas
Illustrations: Kim Downing; Bill Zaun

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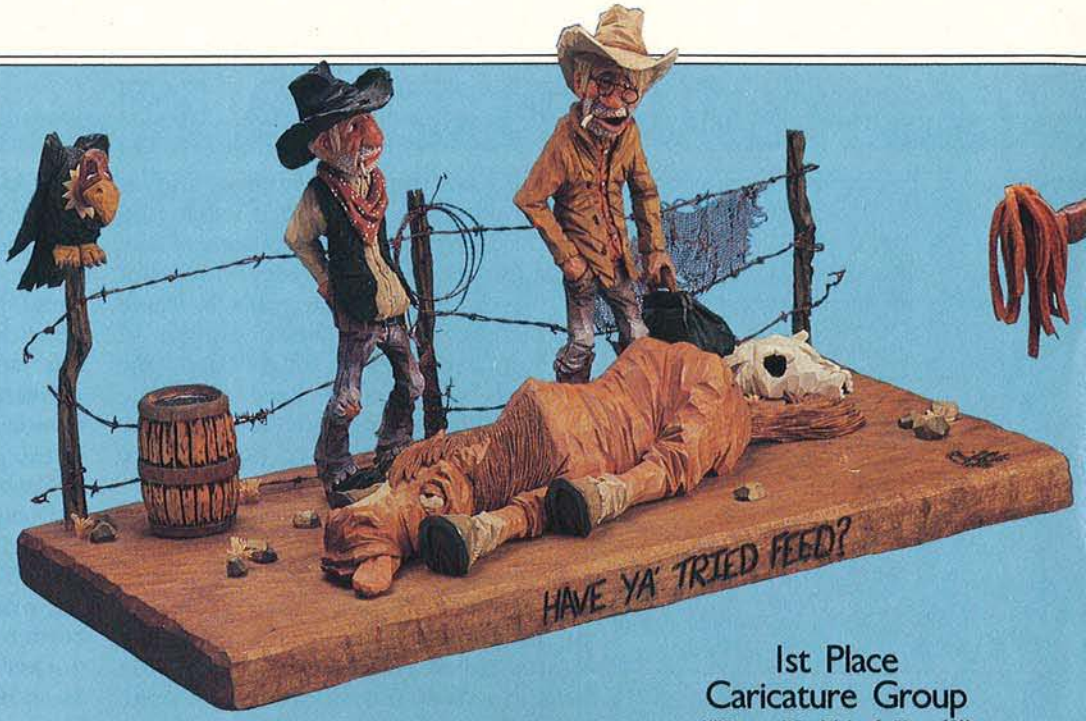
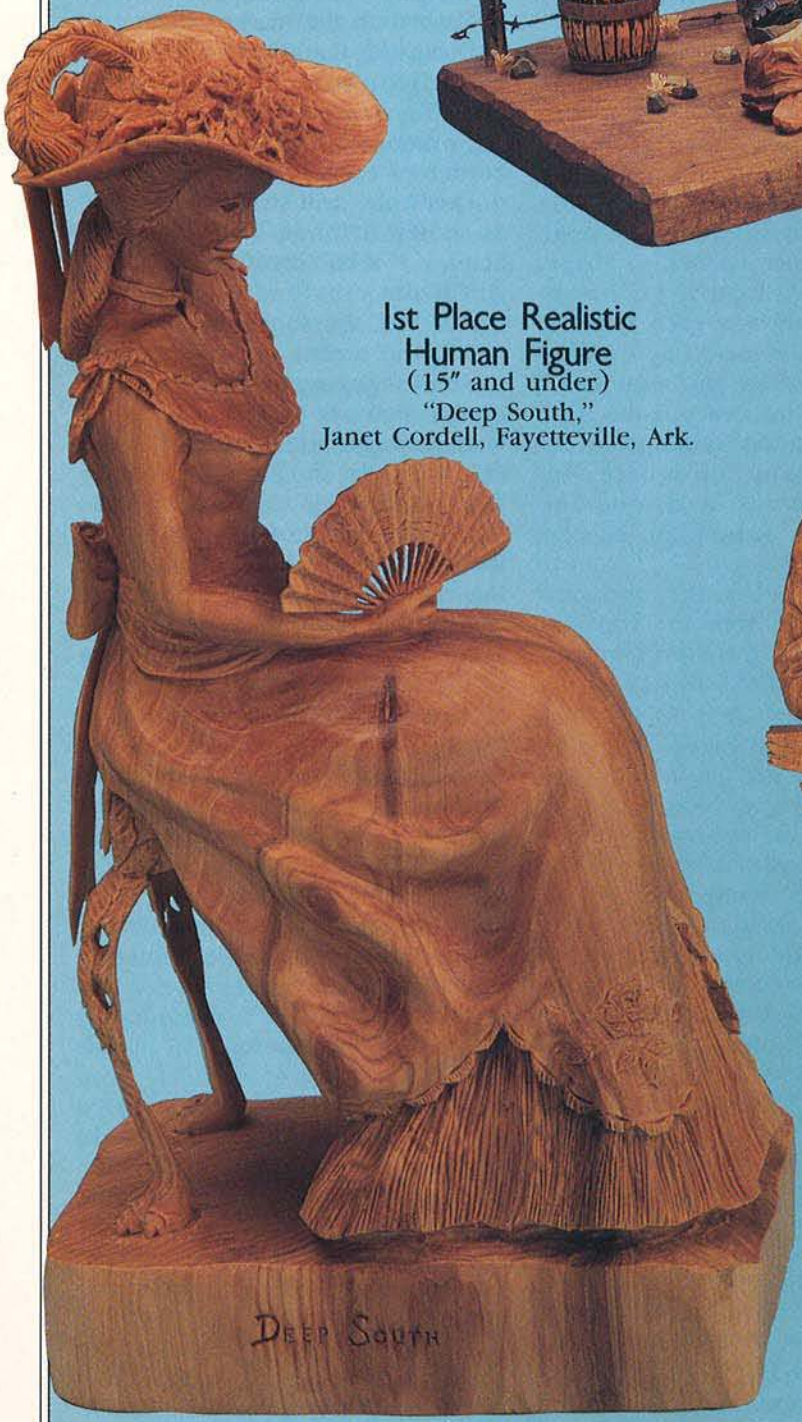
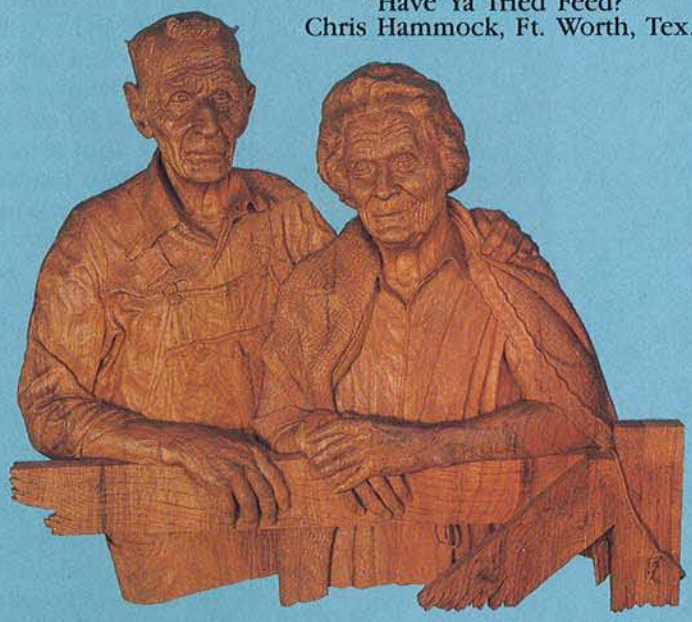


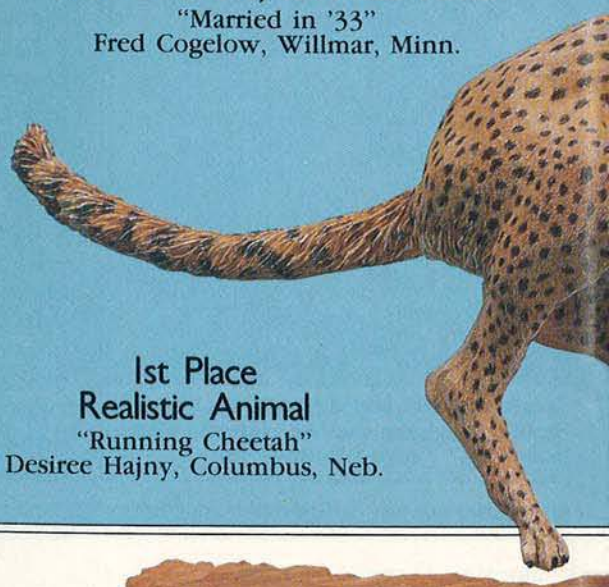
1st Place
Caricature Group
"Have Ya Tried Feed?"
Chris Hammock, Ft. Worth, Tex.

1st Place Realistic
Human Figure
(15" and under)
"Deep South,"
Janet Cordell, Fayetteville, Ark.





Best of Show, 1st Place Relief
"Married in '33"
Fred Cogelow, Willmar, Minn.



1st Place
Realistic Animal
"Running Cheetah"
Desiree Hajny, Columbus, Neb.

Special Edition

PROJECT SHOWCASE

In this special edition of our regular Project Showcase feature, which traditionally highlights readers' projects, we proudly present a photographic sampling of winners from the National Wood Carvers Showcase '88. Held last September, the event attracted carvers from across the nation to Silver Dollar City, in Branson, Missouri, to meet, share techniques, and show their work.

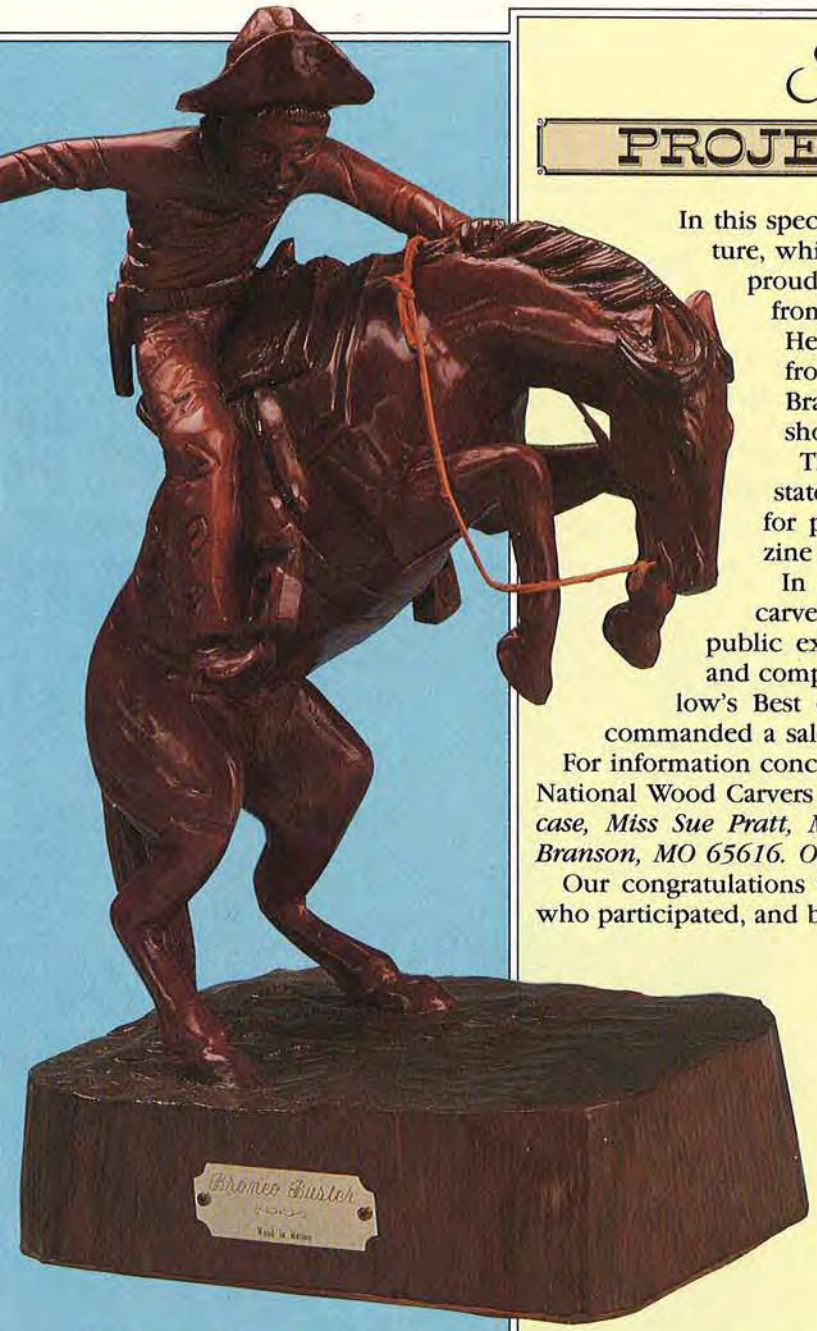
The open competition drew 52 carvers from 17 states, and their 138 carvings were in competition for prizes in 14 subject categories. *WOOD*® magazine sponsored the $3,000 Best of Show award.

In addition to the competition, 13 consignment carvers offered more than 300 works for sale in a public exhibition. At show's end, consignment carvers and competitors had sold 374 wood carvings. Fred Cogelow's Best of Show carving, shown on the facing page, commanded a sale price of more than $6,000.

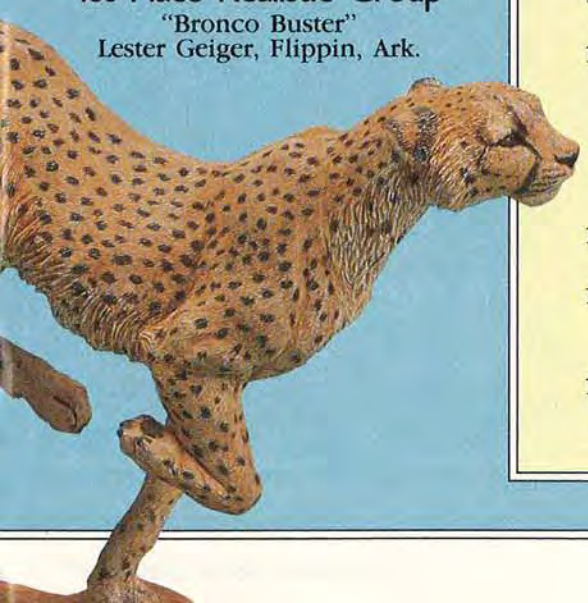
For information concerning dates, attendance, and entry in the 1989 National Wood Carvers Showcase, write: *National Wood Carvers Showcase, Miss Sue Pratt, Merchandise Division, Silver Dollar City, Inc., Branson, MO 65616. Or, call 417/338-2611.*

Our congratulations to the winners, a salute to all the fine carvers who participated, and best wishes to those who will compete this year.

The *WOOD* Editors



1st Place Realistic Group
"Bronco Buster"
Lester Geiger, Flippin, Ark.



Other blue-ribbon winners, not pictured on these pages, included:

1st Place Realistic Human Figure
(over 15") "The Defendant,"
Fred Cogelow, Willmar, Minn.

1st Place Figure—Human Bust
"I've Grown Old Believing"
Janet Cordell, Fayetteville, Ark.

1st Place Caricature Human Figure
"It's Times Like This I Wish I'd Taken Up Golf"
Chris Hammock, Ft. Worth, Tex.

1st Place Caricature Animal
"Day Dreams," Donald Rinehart, Drumright, Okla.

1st Place Decoys
"Pintail Hen"
James and Carolyn Cushing, Mountain View, Ark.

1st Place Birds, Game and Prey
"Redtail Hawk and Copperhead"
Allen Gibson, Dexter, Mo.

1st Place Birds, Song
"Cardinal," Wanda Penny, Pine Bluff, Ark.

1st Place Aquatic
"Sycamore Sun Perch"
Ron Ladner, Mountain View, Ark.

1st Place Original Christmas Ornaments
"Christmas Ornaments"
Joseph Wannamaker, Godfrey, Ill.

Photographs: J.R. Raybourn

A HANDSOME RENDITION OF A FURNITURE CLASSIC

TRESTLE TABLE

"The simple, clean lines of this table allow it to blend with country and contemporary settings. Wooden pins securely join the stretcher to the uprights for lasting durability and classic looks. To complete the set, look for Shaker chairs in our August 1989 issue."

J. R. Downing Design Editor

Svegaurd ladderback chairs courtesy of Workbench Modern Furniture, Des Moines

Print this article

Trestle tables date back hundreds of years, and were common in the Middle Ages. The early tables consisted of loose boards temporarily set on trestles—open, braced frames. The table has undergone many changes in design to meet the needs of those who built it. The Shakers, for instance, designed and constructed many variations—some up to 20' long—for communal dining.

START WITH THE UPRIGHTS

1 Rip and crosscut eight pieces of ¾"-thick oak to 2⅞" wide by 24½" long for the four uprights (A).

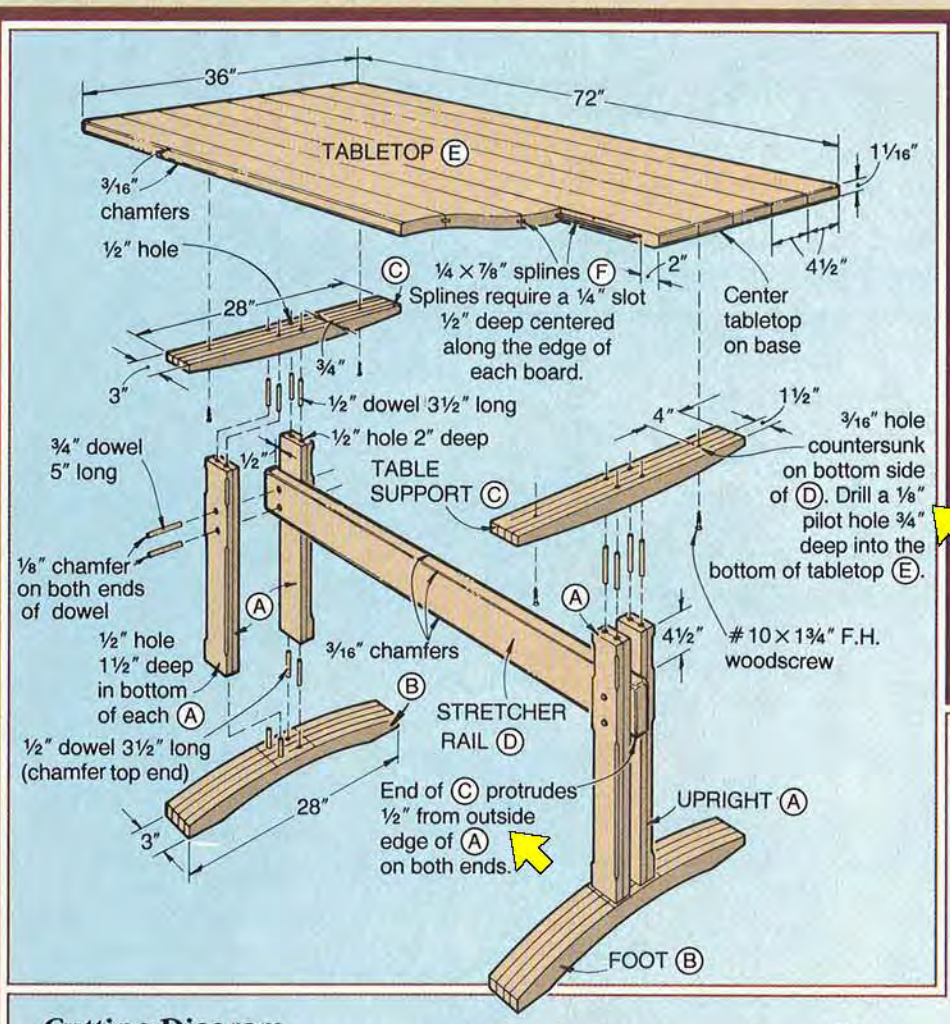
2 With the best surfaces facing out, glue and clamp two pieces together for each upright. Check that the ends and edges are flush. Later, scrape off the excess glue, and plane or joint 1/16" off each edge to ensure flatness. Trim both ends of each upright for a 23½" length.

ADD THE FEET AND TABLE SUPPORTS

1 Cut eight pieces of ¾" oak to 3⅛" wide by 29" long for the two feet (B). For each foot, laminate four pieces together face to face, keeping the ends and edges flush and the best sides facing out.

2 Scrape the excess glue off the edges (not the ends) of each foot. Plane or joint 1/16" off each edge for a 3" finished width.

Continued

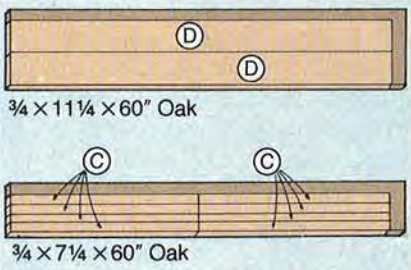


Bill of Materials

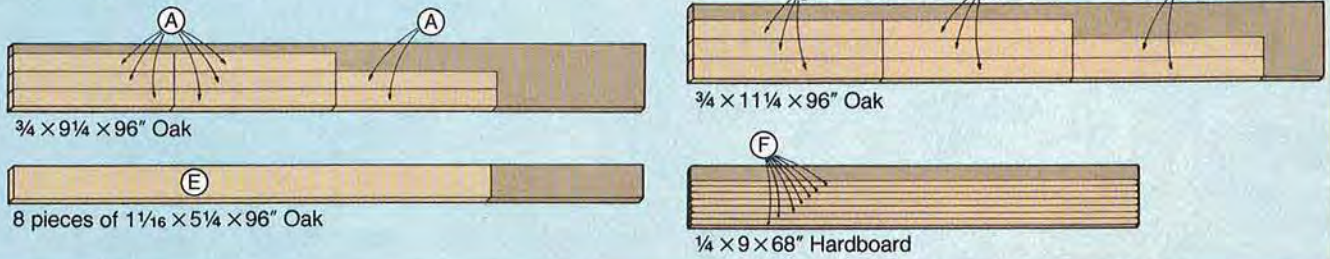
Part	Finished Size* T	W	L	Material	Qty.
A*	1½"	2¾"	23½"	oak (laminated)	4
B*	3"	3"	28"	oak (laminated)	2
C*	3"	1½"	28"	oak (laminated)	2
D*	1½"	5"	57"	oak (laminated)	1
E*	1¹⁄₁₆	36"	72"	oak (laminated)	1
F	¼"	⅞"	67½"	hardboard	7

*Parts marked with an * are cut larger initially, and then trimmed to finished size. Please read the instructions before cutting.

Supplies: ½" dowel stock, ¾" oak dowel stock, #10 × 1¾" flathead wood screws, stain, polyurethane sanding sealer, polyurethane, 0000 steel wool, paste furniture wax.



Cutting Diagram



3 Using the Foot Grid Drawing at *right,* make a paper template for the side profile. To do this, start by cutting a piece of paper to 3×14", and draw a 1" grid on the paper. Now, lay out the shape of half of one foot on the marked grid. Mark the points where the foot-pattern outline crosses each grid line. Then, draw lines to connect the points. Cut the paper template to shape.

4 Find and mark a centerline across each foot lamination (see the Foot Grid Drawing for reference). Position the inside edge of the paper template against the marked centerline, with the bottom edge of the template flush with the flat, bottom edge of the lamination. Carefully trace the foot outline onto each foot lamination. (You'll need to trace the half template twice to mark each complete foot.)

5 As shown in photo A at *right*, cut each foot to shape on a bandsaw fitted with a ¼" or larger blade. To ensure a level-sitting table, do not cut the three flat areas of the foot (see the Foot Grid Drawing for reference). Finally, use a radialsaw or tablesaw and crosscut both ends of each foot square for a 28" finished length.

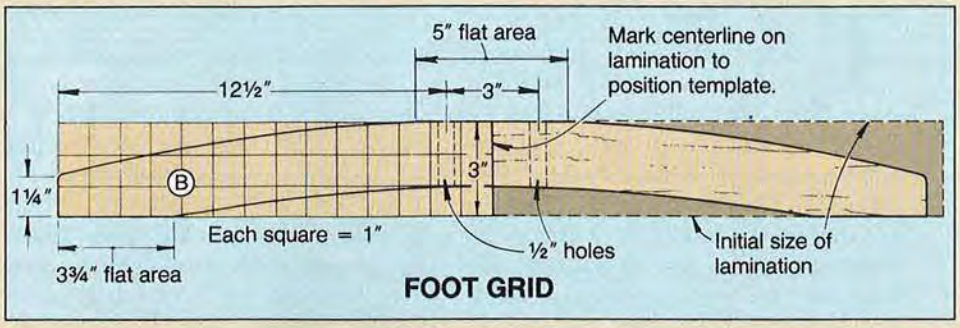
6 To make the table supports (C), cut eight pieces of ¾" oak to 1⅝" wide by 29" long. Glue and clamp four pieces together face to face for each support. Later, scrape off the excess glue and plane 1/16" off each edge for a 1½"-finished width.

7 Using the procedure described in steps 3, 4, and 5 *above,* make a 2×14" paper template, cut the template to shape, and align with the top, flat edge of the lamination. Trace its outline onto each lamination. Now, cut the supports to shape on the bandsaw.

8 Sand the edges on all the pieces smooth to remove saw marks.

AND NOW, FOR THE STRETCHER RAIL

1 Cut two pieces of ¾"-thick oak to 5⅛" wide by 58" long for the stretcher rail (D). Glue and clamp the pieces together face to face, with the edges and ends flush.



FOOT GRID

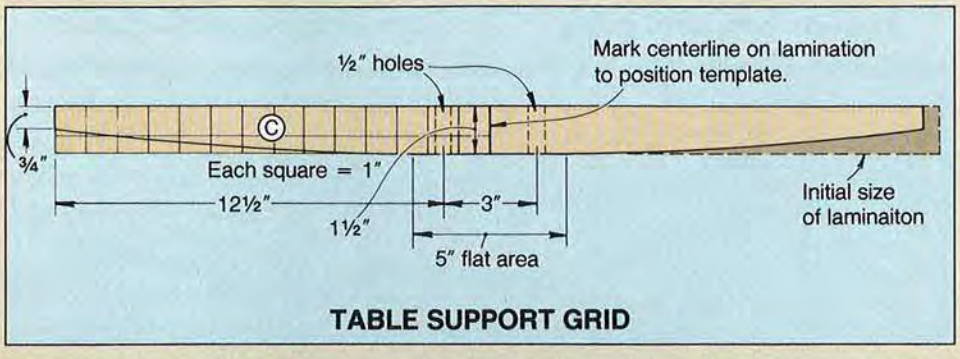
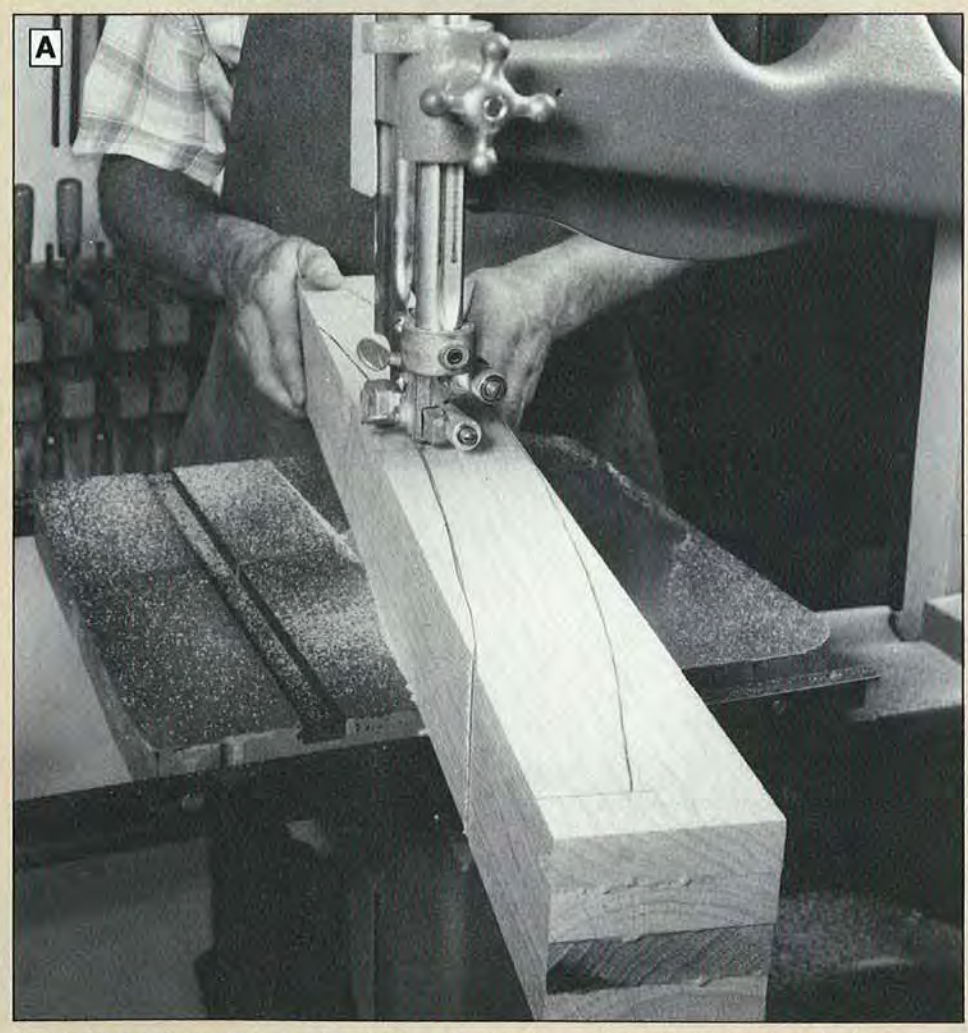


TABLE SUPPORT GRID



Trace the template outline onto the foot lamination, and then cut the foot to shape on the bandsaw. Later, trim the ends square on a radialsaw.

2 Later, remove the clamps and scrape off the excess glue. Plane 1/16" off both edges to ensure flatness, and then trim the ends for a 57" finished length.

3 Rout 3/16" chamfers along all edges and ends of the stretcher rail.

NEXT, LAMINATE THE TABLETOP

1 Rip and crosscut eight pieces of 1 1/16"-thick oak (five-quarter stock) to 4 5/8" wide by 73" long for the tabletop (E). Plane 1/16" off each edge to remove the saw marks and to ensure even joints when laminating.

2 Position the pieces, best side up, on a work surface. Arrange the pieces for the best grain pattern, and number them one through eight for ease of assembly later.

3 Chuck a 1/4" slot-cutting bit into your router. Rout a 1/4" slot 1/2" deep, centered from top to bottom, along mating edges of the tabletop pieces. Stop the slots 2 1/2" from each end.

4 Cut seven splines (F) to size from 1/4" hardboard. Sand the spline ends to a tapered shape. With the splines in place, dry-clamp the first four pieces of the tabletop together to check for tight-fitting joints. Repeat with the other four pieces for the other tabletop half.

5 Glue, spline, and clamp the first four pieces together, keeping the edges, ends, and surfaces flat. Repeat with the second four pieces. Later, glue, spline, and clamp the two tabletop halves together as shown in photo B *below*.

6 Remove the clamps and scrape off the excess glue. Crosscut each end for a finished length of 72". (To minimize chipping the good face of the tabletop, we placed it upside down on saw horses. Then, we clamped a straightedge square with the sides, and trimmed 1/2" off each end with a portable circular saw fitted with a carbide-tipped blade.) Belt-sand the tabletop.

ROUT THE CHAMFERS

1 Using the Upright Drawing as a guide, mark chamfer start-and-stop lines across each upright (A). Then, rout 3/8" chamfers *between* the marked lines. (When routing the chamfers, we wore a full-face shield. The shield allowed us to keep a close look at the rotating bit for starting and stopping at the marked lines.)

2 Now, rout a 3/16" chamfer on top and bottom edges of the tabletop.

3 Using a palm or finish sander, finish-sand the tabletop and uprights. Then, finish-sand the remaining pieces.

ASSEMBLE THE BASE

1 To attach the uprights to the stretcher, start by building a pair of supports to the size shown in the drawing *below*. (We found the jigs extremely helpful in holding the stretcher rail in position when clamping it between the uprights.)

2 Measure in 1/2" from each end of the stretcher rail, and mark a line across both sides of each end (four

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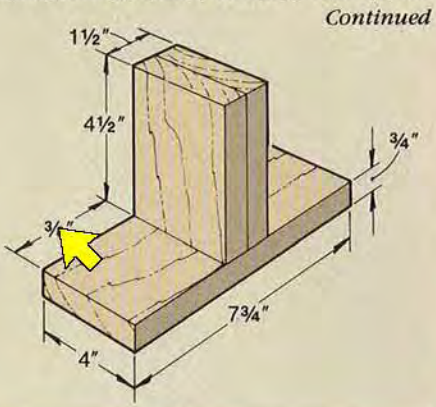
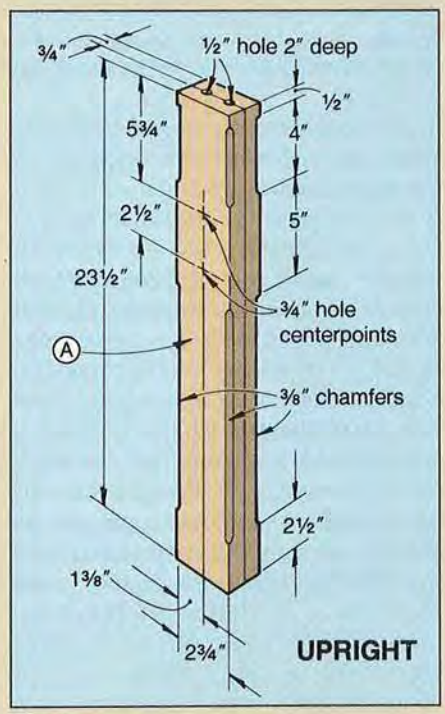
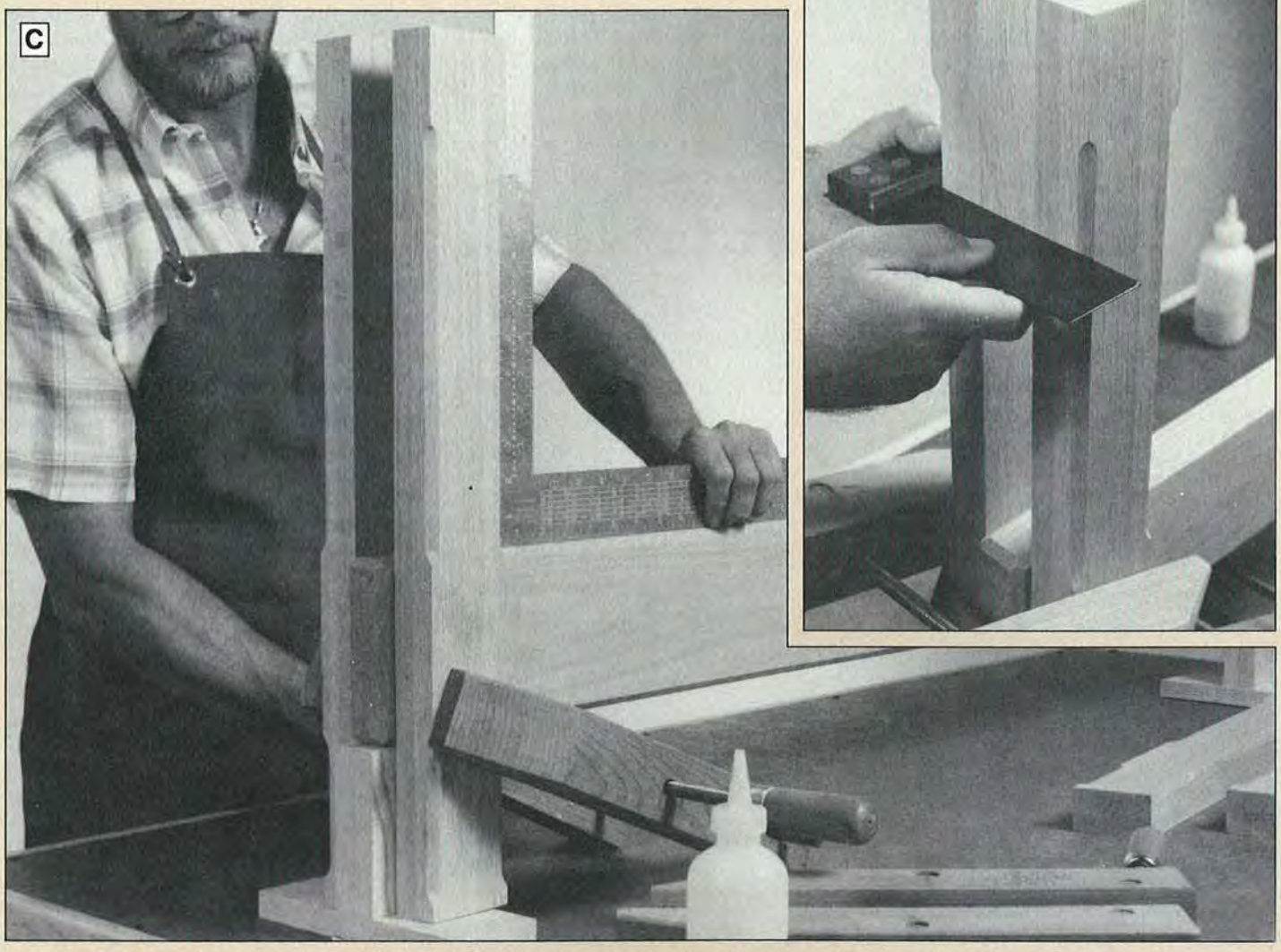




Glue, spline, and clamp the two tabletop halves together, clamping long scrap pieces to the top and bottom to ensure flatness.



Position and clamp the uprights and stretcher on a support jig. With a framing square, check that both uprights are square with the stretcher.

Use a small square to check that the uprights are square and parallel.

lines in all). The lines will help you align the rail with the uprights in the next step.

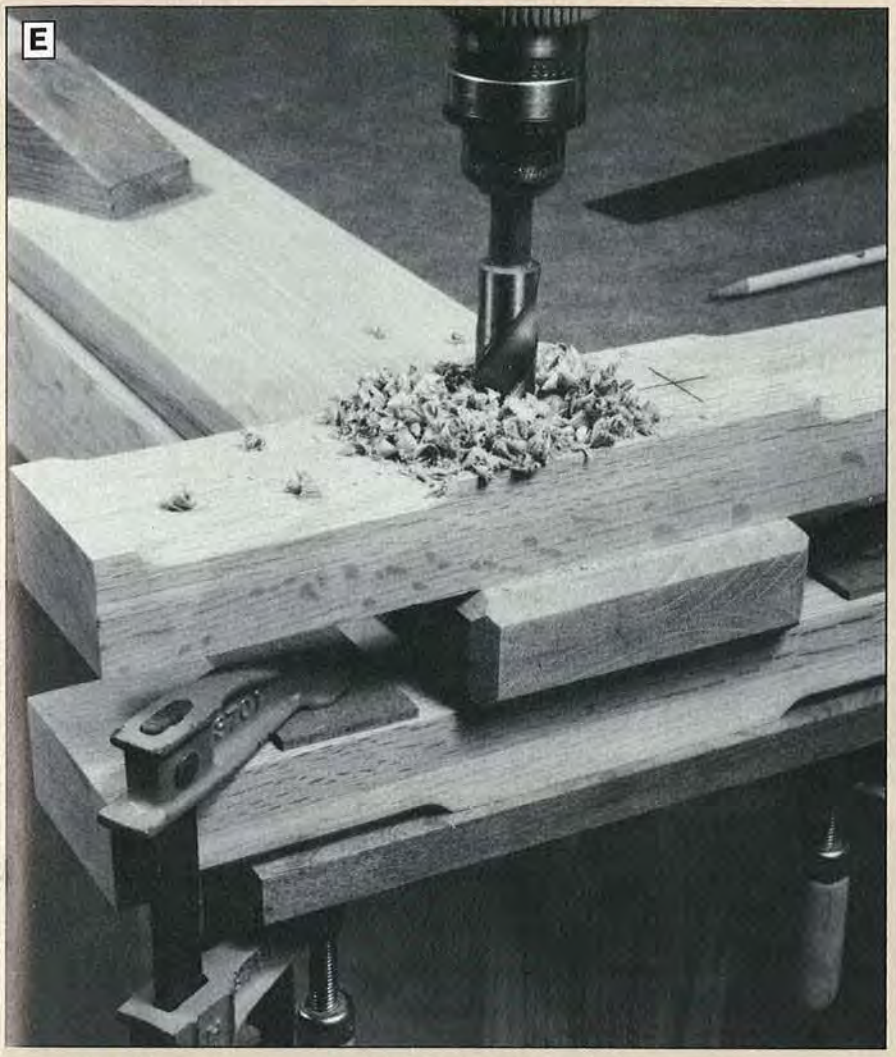
3 Apply glue to the mating surfaces, and position the stretcher rail on the two support jigs and between the two uprights as shown *above* in photo C. With the stretcher rail protruding ½" beyond the outside edge of the uprights (use the lines drawn in the previous step for this), clamp the stretcher rail in place. Check that the stretcher is square with the uprights as shown in photo C. Also make sure that the uprights are square with each other as shown in photo D. Immediately wipe off any excess glue with a damp cloth. Let the glue dry, and then repeat the procedure on the opposite end with the two remaining uprights.

4 Locate and mark the centerpoints of the two ¾" holes on each upright (see the Upright Drawing for location). As shown in photo E, clamp the stretcher rail-upright assembly to your workbench, and clamp a scrap block onto the bottom face of the lower upright where shown in the photo. (The scrap block helps prevent chip-out when boring through the bottom upright.) Bore a pair of ¾" holes where marked through the uprights and stretcher. Repeat this procedure for the other end.

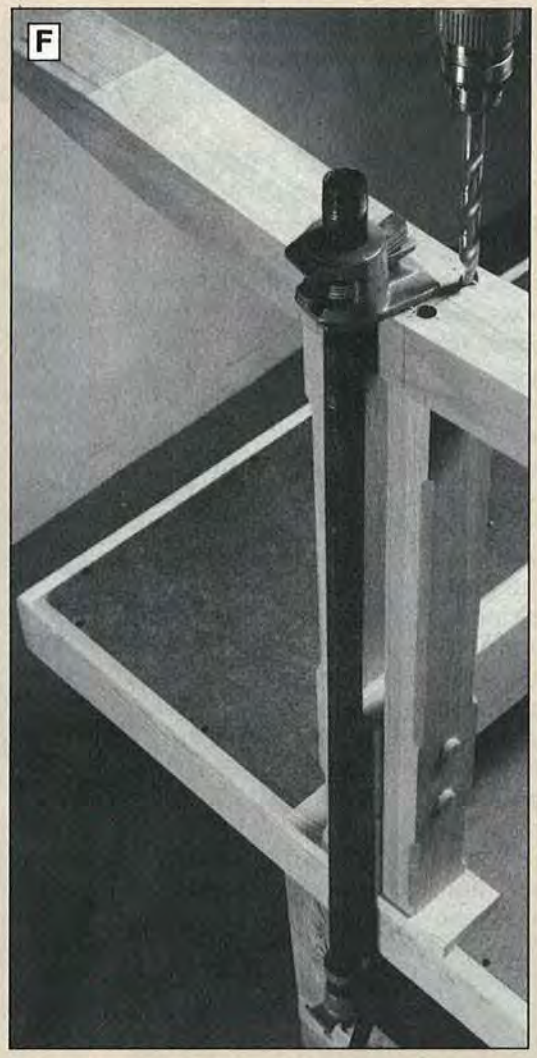
5 Cut four 5" lengths of ¾" oak dowel. Chamfer each end of each dowel (we used a belt sander). Apply glue in the ¾" holes in the stretcher-upright joint, and drive the dowels in place with a rubber mallet so ¼" of dowel protrudes from each surface. Immediately wipe off any excess glue.

6 As shown in photo F, position the base upside down and resting on the supports. Position the flat, center portion of a foot on the ends of the uprights and clamp the assembly to your workbench.

7 Use a square to transfer each upright joint line (the glue line between the two individual pieces that form each upright) up the outside face and across the bottom of the foot. (The line is just to the right of the clamp in photo F.) Next, transfer the second line



Mark the centerpoints and bore a pair of ¾" holes through the upright-stretcher rail assembly, backing the stock to prevent chip-out.



Clamp the foot to the uprights. Mark the centerpoints, and bore the holes for the dowels.

across the bottom of the foot. Mark centerpoints at the first and third glue line on the bottom of the foot. Bore four ½" holes through the foot and 1½" deep into the upright. Repeat the marking and boring procedure with the other foot.

8 Cut eight pieces of ½" dowel to 3½" long. Sand a chamfer on one end of each dowel.

9 One at a time, clamp a dowel in a bench vise, and cut a ⅛"-deep glue groove (kerf) the length of the dowel. (We used a dovetail saw to cut each kerf.)

10 Spread glue in the dowel holes, and glue and drive the dowels through the bottom of the feet and into the uprights. Drive the dowels until the bottom of the dowels are flush with the bottom surface of the feet. Trim or sand any protruding dowels flush if necessary. Repeat for the other foot on the opposite end.

11 Use the process just described in steps 5, 6, and 7 to join the oak table supports to the top ends of the uprights.

APPLY THE FINISH

1 Apply the stain of your choice. Apply two coats of polyurethane sanding sealer to all surfaces (including the bottom of the tabletop), sanding with 320-grit paper between coats.

2 Apply two coats of clear polyurethane. (We used satin polyurethane. After the final coat dried, we applied paste furniture wax to 0000 steel wool, and rubbed the surface down for a smooth finish.)

ASSEMBLE THE TABLE

1 Lay the tabletop facedown on a blanket. Center the base, also upside down, on the bottom of the tabletop. Being careful not to drill too deep, drill a 3/16" shank hole through the table support, and a ⅛" pilot hole ¾" deep into the bottom side of the tabletop, where located on the Exploded-View Drawing. Fasten the base to the tabletop with #10 × 1¾" wood screws.

Produced by Marlen Kemmet. Project Design: James Downing. Photographs: Hopkins Associates; Bob Calmer. Illustrations: Kim Downing; Bill Zaun

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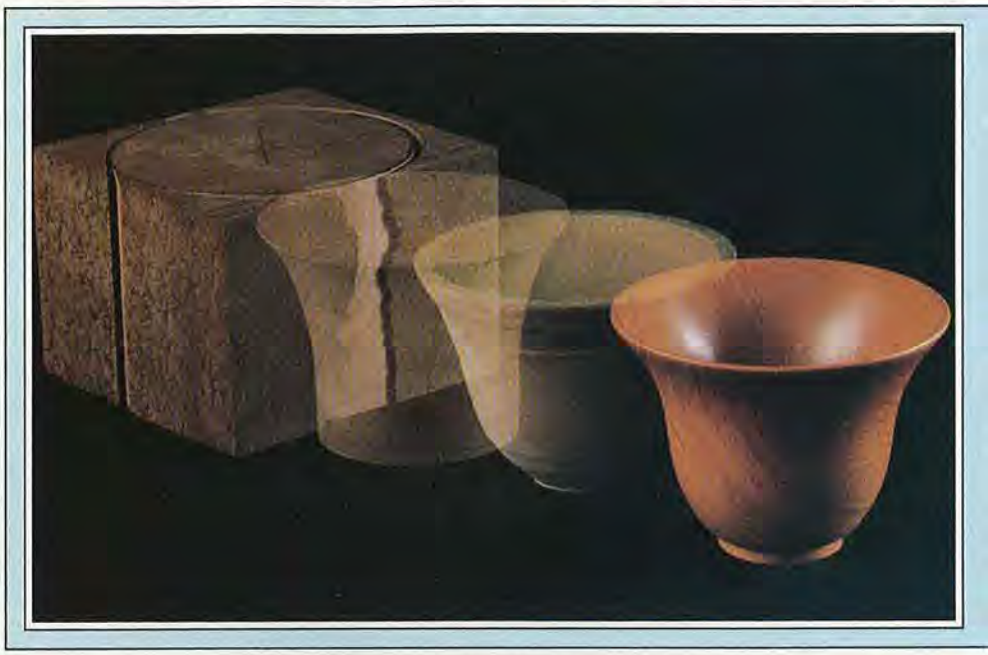
DON'T LEAVE FORM TO CHANCE!
A SUREFIRE TECHNIQUE FOR

Frustrated from figuring out what your bowl should look like? Here's help.



Dale Nish, the well-known woodturner, author, and educator from Provo, Utah, says that "You could paint a good-looking, turned bowl black, and it would still be attractive." According to Dale, that's because a bowl's form should be appealing enough to stand by itself, yet display the wood to its maximum potential. But, coming up with great-looking bowl shapes that meet this standard perplexes even the best woodturners.

"I once attended a woodturning seminar taught by Bob Stockdale," Dale notes, "and someone asked him, 'Where do you get your ideas for shapes?' He said, 'I checked out a book on oriental porcelain from the library one time, and found out they had been copying me for 2,000 years!' "

That tongue-in-cheek reply actually was sound advice (see sidebar, *right*, for design tips from the experts). Pleasing-to-the-eye pottery shapes show up in civilization after civilization throughout history. And, most all can be adapted from the potter's wheel to the lathe. But, unlike a potter, who has the luxury of shaping and reshaping as long as the clay remains wet, a woodturner seldom can change his mind. In bowlturning, advance planning becomes all-important.

GOOD BOWL DESIGN BEGINS WITH PROPORTION

Some people possess a natural eye for shape and proportion. If you don't, there's plenty of hope. That's because—believe it or not—you can mathematically calculate pleasing-to-the-eye proportions.

The ancient Greeks perfected the "Golden Mean," a formula that utilizes the ratio 1:1.618 to find the length of the long side in relation to the short side of a rectangle. Furnituremakers have long relied on the formula.

But how does the Golden Mean help in bowlturning? With it, you can figure out such troublesome relationships as the diameter of the rim to the height of the bowl or the base diameter to the height.

Here's an example: Let's say you have a bowl blank 4" thick and 8" square. You know the height cannot exceed 4", but to what diameter should you turn the bowl to maintain a pleasing proportion? Simply multiply 4×1.618 to find the diameter, which, in this case, equals about 6½". For the diameter of the base, *divide* the 4" bowl height by 1.618. The result: about 2½" *(see drawing, above right)*.

These dimensions give you a beginning for a bowl with proportionate dimensions, at least as preferred by the ancient Greeks. With the technique shown on the following pages, you'll be able to draw from an inventory of curves that open endless choices of form.

DESIGN TIPS FROM

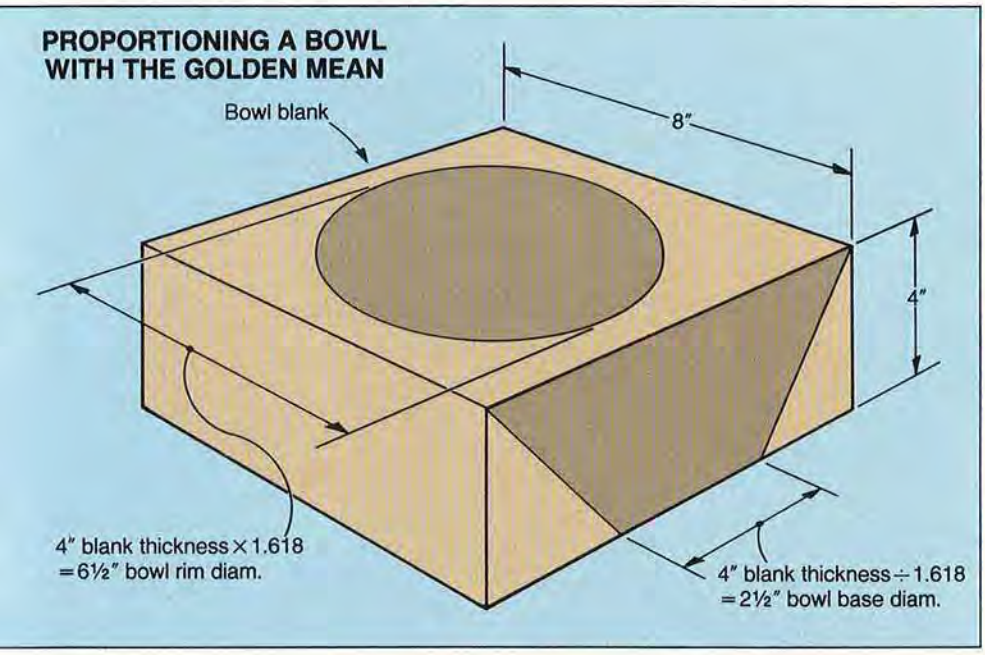
Noted woodturners/authors Richard Raffan, from Australia, and Dale Nish, from Provo, Utah, teach novice turners. Here's their advice on bowl form:

Q *What are the most common mistakes a beginning turner makes with form?*

A Raffan: Novice turners try to be too complicated when it pays to be as simple as possible. I made a great leap forward when I decided that I was getting too involved with reverse curves and such. When I started to do simple curves, I began to appreciate form. Beginners jump ahead too fast. They become so pleased with all the shapes gotten so quickly that they tend to make more use of the technique than the design.

A Nish: Most beginning turners make the foot for the base of a bowl too large. The base, or the foot, diameter doesn't have to be

PLEASING BOWL DESIGN


PROPORTIONING A BOWL WITH THE GOLDEN MEAN
Bowl blank
8"
4"
4" blank thickness × 1.618 = 6½" bowl rim diam.
4" blank thickness ÷ 1.618 = 2½" bowl base diam.

TWO TOP TURNERS

any more than one-quarter to one-third of the bowl's maximum diameter. If it's a functional piece, the base can go to half the maximum diameter. That gives it stability.

Q *Should beginners avoid some types of forms?*

A Raffan: Go for open shapes. They're much, much easier to turn. It's far more difficult to create a tight curve that comes up and out from the base, then back in again, than an outflowing curve.

Study ceramics, especially Japanese pottery. The forms won't always be symmetrical, but you'll gain a sense of proportion. Remember, forms are pretty universal. You just learn to adapt.

A Nish: Find a good shape and copy it! You'll be better off than to try and invent a new one. Seriously, though, forms are timeless. Look at pottery through the centuries, read books on art history, check out what others are doing. But, I do have some rules of thumb regarding form.

A good piece should feel as it looks—that is, its appearance should reflect its actual weight. For instance, a sturdy-looking bowl should have heft. And, visually, the maximum diameter of a turned bowl should never be in the center. It should divide a bowl horizontally into 2/5, 3/5 or 1/3, 2/3.

Another rule: The more colorful the wood, the more exciting the grain pattern, the simpler the form you need to show it off. However, that doesn't mean someone should neglect form altogether and rely on only the wood to make the bowl attractive. A good-looking bowl has to have the right balance.

For more information on form, read, *Turned-Bowl Design*, by Richard Raffan, 1987, The Taunton Press, Inc., 63 S. Main St., Newtown, CT 06470, $17 ppd.

HOW TO DESIGN WITH A CHAIN

Proportioning a bowl's dimensions with the Golden Mean gives you the rough outline for your bowl-to-be. To find out the next step—how to come up with an attractive form—we called on Nancy Briggs, an experienced potter, artist, and photo stylist, who helps with project photography in *WOOD®* magazine's studio.

On the potter's wheel, Nancy has fashioned thousands of bowls, vases, cups, mugs, and platters. Form comes quite naturally to her. But, explaining how to create good form was another matter. Even after hours of research on the subject, Nancy could only report, "Nothing concrete." Then, we got our heads together and went over all the types of curves and arcs you'll find in bowls. What architects call a "catenary" intrigued us.

Bowl profile drawn with the aid of a hanging chain. Mahogany, 5¼ × 4".

Imagine a jewelry chain hanging freely around the neck. That's a catenary curve. Without tension, the chain forms a flowing, natural contour "perfect for the shape of a bowl," Nancy declared. She then offered to work on some variations.

Later, Nancy brought in a simple-to-do technique for designing bowl shapes. "It offers so many great possibilities that I plan to use it in designing some of my own work in

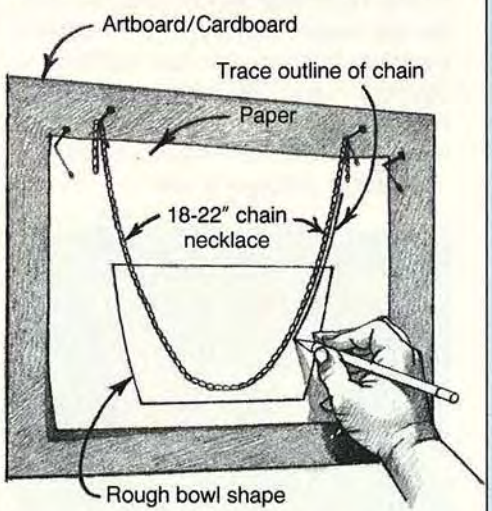
Continued

SUREFIRE BOWL DESIGN

clay," she said. "Besides, it's easy as well as fun to do."

Begin by finding your bowl's basic proportions with the principle of the Golden Mean. Then, draw its full-sized, rough outline on a piece of paper. Now, tape a large piece of cardboard to a wall and fasten an 18–22" length of neck chain to it with a straight pin at both ends. The chain should drape without any tension.

To find a pleasing form for your bowl, slip the paper with the bowl outline behind the draped chain, then move the paper around. Change the shape of the chain's curve by repinning the ends. Try dipping the loop below the bowl's base outline and raising it above. The loop formed by the chain doesn't have to meet the base of your bowl. Experiment! Even turn

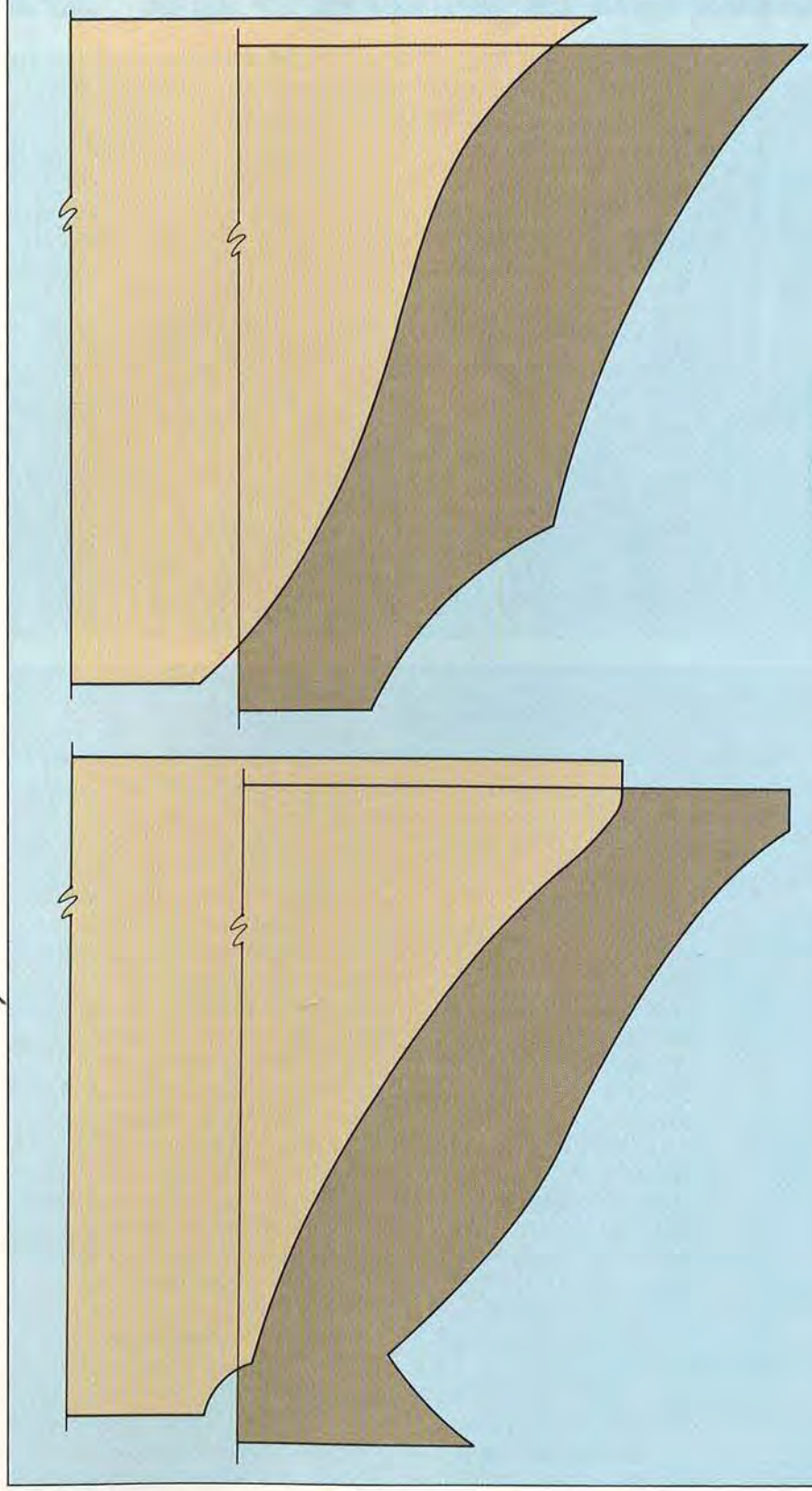


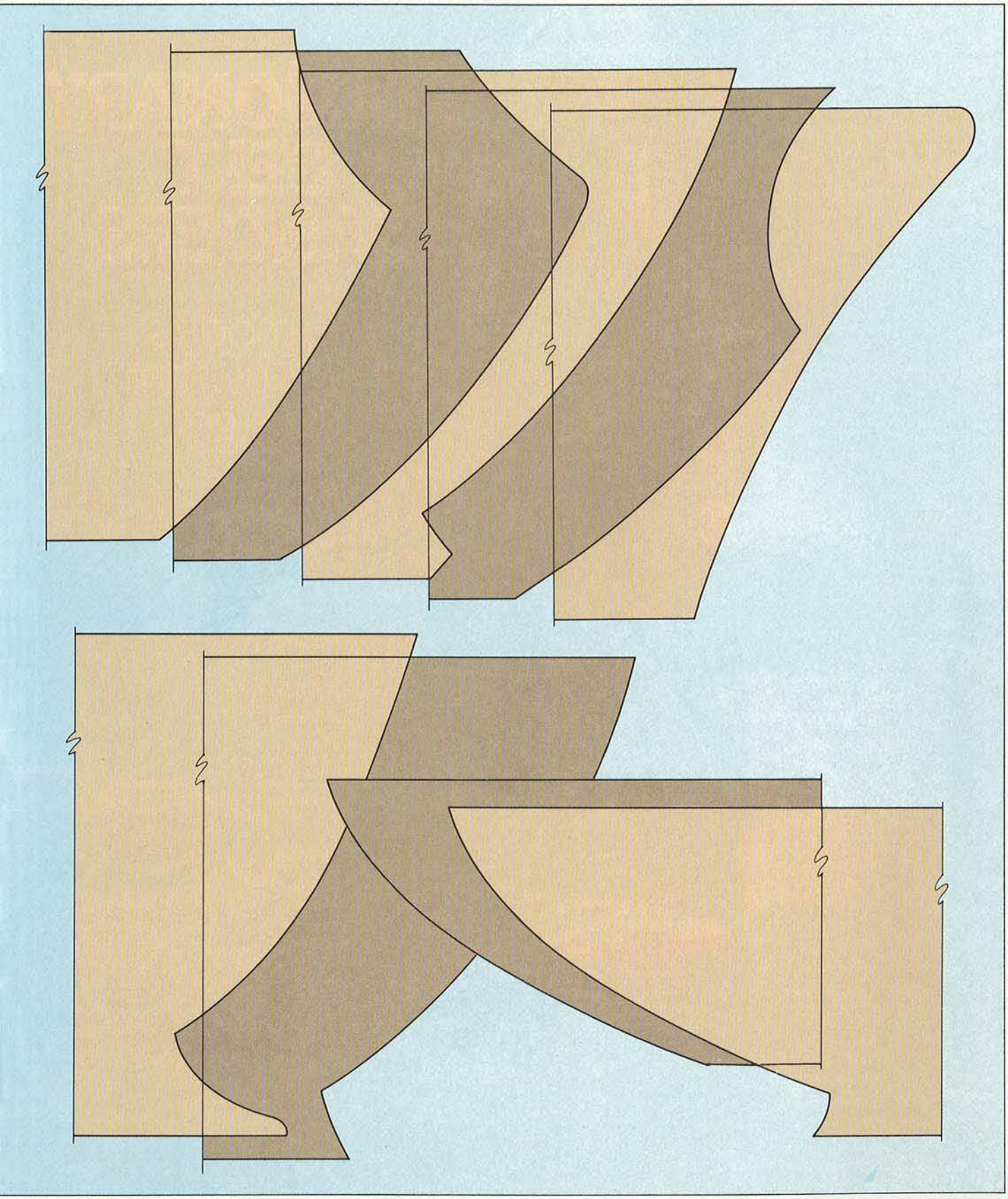
your paper upside down to get convex shapes or tilt it to combine curves for more complex profiles.

When you've found the form you want to pursue, tape or pin the paper to the cardboard and track the chain's outline on your pattern with pinpricks through the links. Join the dots later with a continuous pencil line.

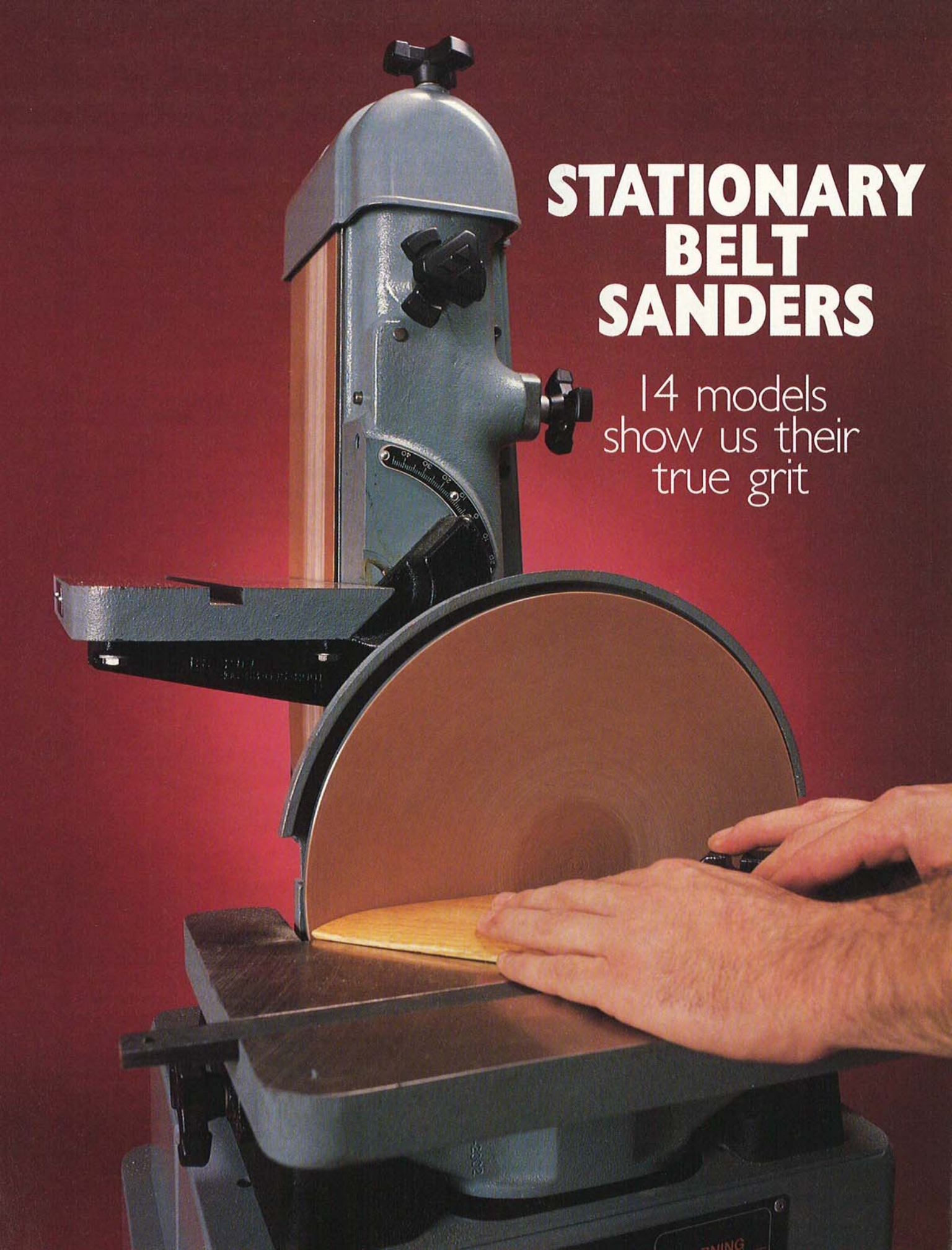
Nancy says that designing with this method not only sharpens your eye for form, but it's fun. The 13 different bowl profiles on these pages represent only a portion of the many she uncovered.

A BAKER'S DOZEN BOWL SHAPES





Photographs, Bob Calmer; Illustrations: Jim Stevenson; Mike Henry



STATIONARY BELT SANDERS

14 models show us their true grit

If you think all stationary belt sanders consist of an endless sanding belt and disc, you're right. Sort of. Today, however, you can spend as little as $250 or more than $1,000 for machines that, at first glance, appear to do the same work. But do they? In this article, we'll answer that question and examine some interesting edge, strip, and benchtop sanders. Print this article

A stationary belt sander may be the simplest woodworking machine you'll ever own. Basically, all of them consist of a sanding belt (6×48" on most machines) backed by a flat surface called a platen, and two rollers that move the belt (one turning freely and one powered by a motor). They also have one or two work tables that give you a solid surface to steady your workpiece as you sand it. Thanks to the large surface area of their belts, these machines remove a lot of stock quickly, and one belt may last you months if you're a light user. Although simple in their operation and construction, we found big differences in the design, purpose, and features of the machines we tried out.

WHAT TYPE OF SANDER IS RIGHT FOR YOUR SHOP?

No matter what size or type of projects you take on, there's a machine suited to your needs. As shown *below,* sanding machines work in five different modes: disc sander, vertical and horizontal belts, edge sander, and strip sander. Since most machines combine two or three of these functions, the key to choosing the right machine lies in determining the modes you need and finding a machine at an affordable price with a combination of your desired modes.

Strip sanders resemble vertical belt sanders, but the belt never exceeds 1" in width. Except for the edge sander, most sanding machines will have a disc sander in combination with the belt.

For example, the Grizzly model G1531 edge sander shown at *left,* doesn't have a disc, but does have a table that wraps around one roller for half-drum sanding of concave edges. Also, a crank elevates the work table, allowing you to use the full width of the belt without piling boards under your workpiece.

A locking lever atop the Grizzly model G1531 edge sander loosens the tension on the belt in a snap. Elevating tables help you use the belt's full surface.

If a disc and vertical/horizontal belt combination fits your needs, then you're in luck, because more sanders sell in this combination than any other. Two widely available types in this combo, the Lobo model SD-0069 and Jet model JSG-96 shown on page 68, have vertical and horizontal positive stops for the platen. You also can lock either machine at some in-between point, such as 45°, as we did with the Lobo pictured. Sears sells a machine nearly identical to the Jet unit, while Black & Decker markets an improved version of this Taiwanese machine. We'll fill you in on the key differences between these sanders later.

On the other hand, you may need a machine with a belt that flips from horizontal to edge sanding, such as the Foley-Belsaw model 4130901 or Total Shop model

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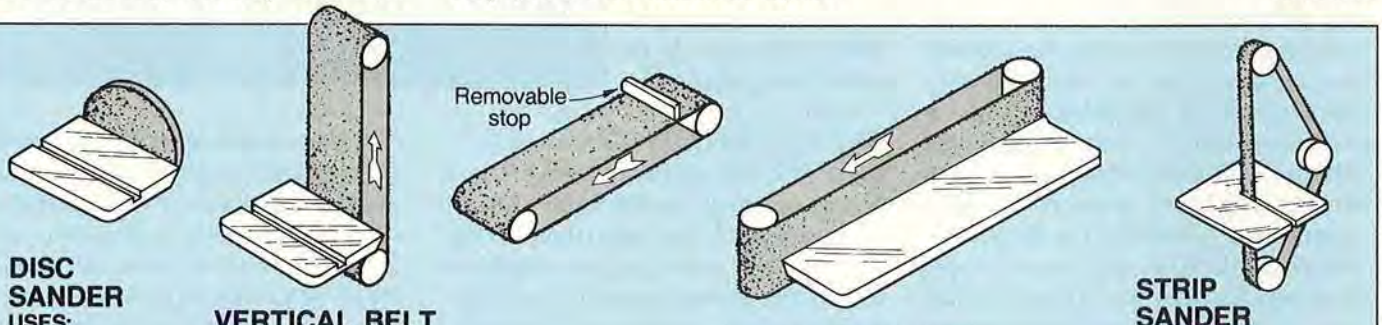


DISC SANDER
USES:
- Touching up miter joints
- Working small parts
- Chamfering dowel ends
- Sanding a perfectly flat surface

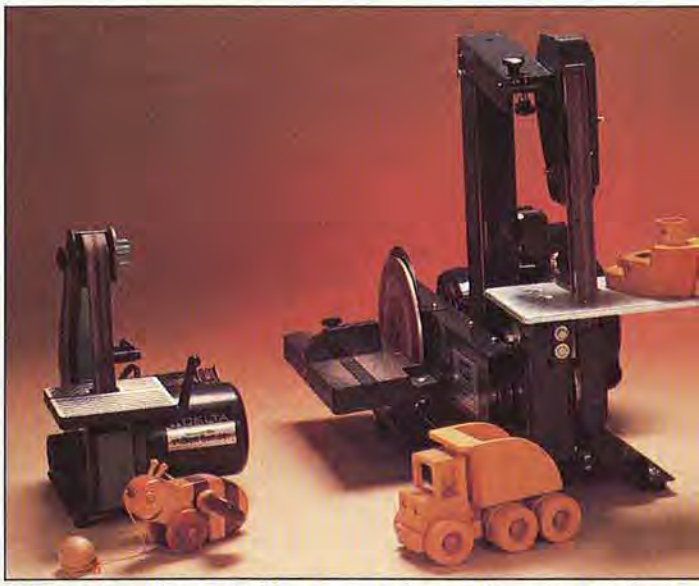
VERTICAL BELT
USES:
- Rapid removal of material
- Sanding back to a line
- Touching up miters and compound angles
- Short edge sanding

HORIZONTAL BELT
USES:
- Sanding face grain stock with stop removed
- Hand-held sanding of irregular stock

EDGE SANDER
USES:
- Smoothing and straightening long edges
- Concave sanding on the open roller
- Edge sanding of flat stock with convex curves

STRIP SANDER
USES:
- Metal sharpening
- Sanding tight and inside areas (belt must be removed and looped through inside areas)

▲ The Foley-Belsaw 6×89" model 4130901 on the *left* and its near-twin, the Total Shop 6×48" model 943 on the *right*, operate as horizontal or edge sanders. Both units have the miter gauge shown on the Foley-Belsaw and the fence mounted on the Total Shop.



▲ These benchtop machines serve the small-project maker. From *left*: Delta model 31-050 strip sander, AMT model 4150 strip/disc sander, and the Delta model 31-460 belt/disc sander.

▼ The Lobo model SD-0069 on the *left* appears similar to the Jet model JSG-96 on the *right*, but the Lobo lacks a dust collection port and has a lightweight aluminum work table.

943 shown *above*. Although different in size—the Foley-Belsaw unit has a 6×89" belt and the Total Shop model has a 6×48" belt—the machines have nearly identical construction. These models, as well as other edge sanders on the market, do not have sanding discs.

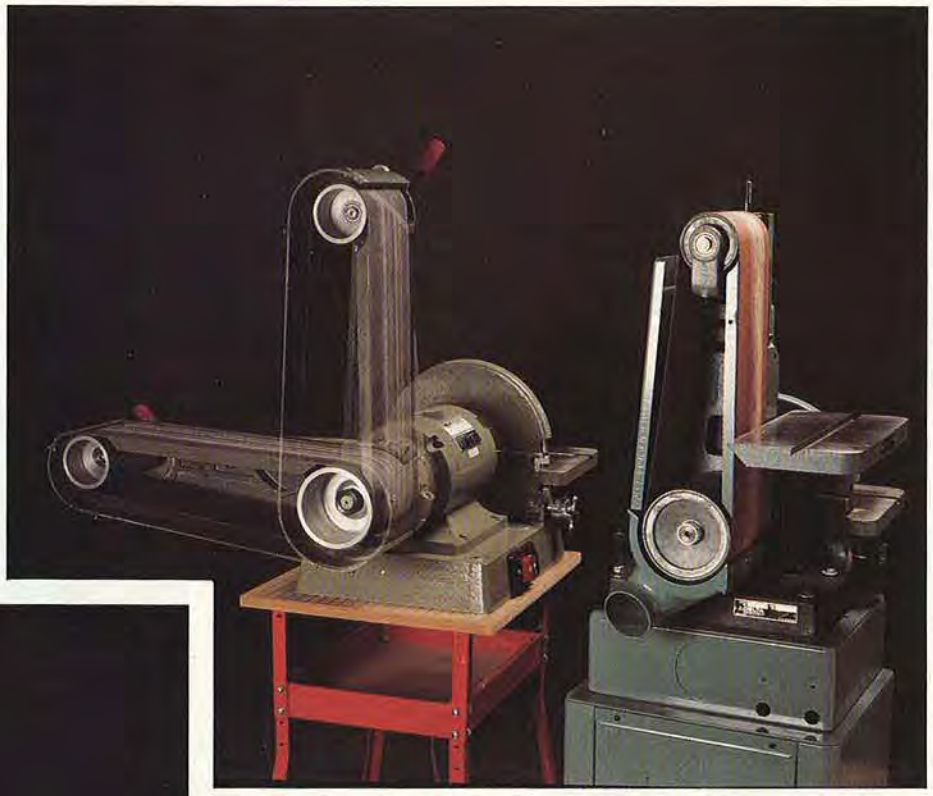
If all these machines seem too large or expensive for your shop, you can buy a benchtop sander such as those shown *top right*. These versatile performers will help you prepare small projects, such as toys, or shape tiny parts for models or carvings. On the other hand, they don't have the belt capacity or power to handle larger projects, such as cabinets. You'll find strip sanders only in benchtop machines, and these handy machines will do jobs belt sanders can't, such as metal sharpening and sanding of narrow areas inaccessible to larger sanders. Delta's model 31-050 strip-sands *and* accepts optional flexible-shaft attachments for cutting, grinding, and sanding.

The discs on benchtop sanders range from 5" to 8" in diameter. Although you can buy industrial-size disc sanders larger than 12", the discs on stationary belt/disc sanders for the home shop range from 9" to 12" in diameter. When you're considering the disc size of a sander, remember that you can only use half of a disc for sanding. In other words, a 12" disc yields 6" of sanding surface. A benchtop sander will yield only 2½–4" of usable disc surface.

DUST COLLECTION: A MUST IN OUR BOOK

No woodworking machine throws off more fine sawdust than a stationary belt sander. Nevertheless, we came across several machines without dust collection capability, such as the Lobo unit shown *above* (check the chart on page 63 for a listing). We found the Grizzly model G1183, shown on the next page to be a well-made and user-friendly machine, but the omission of a dust-collection port disappointed us. However, as an example of how different importers modify similar Taiwanese machines, Jet sells a nearly identical version of this machine with a dust collection port.

Although we applaud all sanding machines with dust collection capability, it's easier to sand long stock on some machines because of better-positioned dust ports. For example, although the dust ports on most of the machines we tested stayed well out of our way when sanding long stock, the ports on other machines jut above the sanding surface. Both the Foley-Belsaw



▲ We removed the belt guards for an inside look at the Grizzly model G1183 on the *left*, and Delta model 31-730. Our inspection revealed a more-sturdily mounted upper roller on the Delta.

◀ After removing the belt guard on the Grizzly model G1183, you only need to push a lever to relax the belt for removal. However, the lever doesn't lock in the loosened position.

and Total Shop edge sanders on the previous page fall into this group. We asked Tom Stratton of Foley-Belsaw why, and he said his company will explore the possibility of lowering the dustport. "We're looking into it, but we want to be certain we can maintain good dust removal while lowering the port," he said.

BELT ADJUSTMENTS: THEY SHOULDN'T BE A CHORE

Of the 14 machines we looked at, we found 13 different methods for changing belts and adjusting belt tracking. The two with the same system, the Foley-Belsaw and Total Shop models, received high marks in this area, along with the DeWalt model 1765 shown on the next page, and the Grizzly models G1183 and G1531. With these machines, you can change belts by simply pushing a tension-release lever.

However, both the Jet and Lobo units require you to completely loosen the tracking adjustment controls to release the belt. In addition, you must remove a screw from Jet's dust collection port before replacing the belt.

For any sander, the tracking adjustment works by tilting one drum so the belt either moves to the left or right while it's turning. When properly adjusted, the belt will move neither left nor right, staying on the center of the rollers as the machine sands.

Both of the Grizzly machines make this operation a breeze, because you only twist one knob to quickly make a tracking adjustment. For the Foley-Belsaw and Total Shop sanders, you must insert a special ground-down screwdriver into the tracking knob and turn it to make the adjustment. That sounds easy, but we think many woodworkers could easily misplace the screwdriver-like device.

Our study of these tracking mechanisms revealed something about the reasons why similar-looking sanders can be hundreds of dollars apart in price. As shown in the photo *above* of the Grizzly model G1183 and Delta model 31-730, the less-expensive Grizzly has an upper

Continued

You can release, tilt, and lock the tables on the Powermatic 30B by turning one large knob on each end of the tables.

Convenience features and an edge-sanding fence make the DeWalt model 1765 stand out from the crowd.

roller supported on only one end, while a cast-iron yoke on the Delta machine supports the roller on both ends. This extra support makes the Delta roller less prone to continual tracking adjustments.

PLATENS AND TABLES: CONVENIENCE COUNTS

For both platens and tables, we appreciate those that pivot with little effort, lock into place easily, and stay in place once secured. Although it's not inexpensive at $1,049 list, the Powermatic 30B sander shown *above* has the kind of platen and table-tilting mechanisms that make the machine a pleasure to use. An easy twist of one large knob locks or loosens the tables, and the platen moves after an easy tug on one knob with positive stops at 0°, 45°, and 90°.

The Powermatic machine also has perfectly flat cast-iron tables and platens—another quality we like. On any sander, cast iron provides a surface that's less prone to flexing and denting than stamped steel or aluminum.

Before you buy a sanding machine, make certain that the platen rises above the rollers. Under the reverse situation, when the rollers sit above the platen, you will not be able to sand a flat surface on stock that's longer than the platen because the rollers will create a hump in the workpiece. We discovered this problem on the Total Shop unit, so we asked Wayne Preston of Total Shop about it. "We recognized that problem on some of the first units we received, and it's been corrected—the platen is above the rollers on all the units we're shipping now," he said.

SOME FINAL THOUGHTS

If you can afford them, machines such as the Delta 31-730 and Powermatic 30B have every desirable quality you can ask for in a stationary belt sander. As you move down in price among these machines, you'll find fewer and fewer conveniences. For instance, the Lobo machine has few convenience features, but it's also the only 6×48" machine available for under $300.

We feel that the DeWalt model shown *above right* strikes the best balance between price and features of the sanders we tested. Although the Black & Decker-backed DeWalt machine lists for $88 more than the similar Jet sander, the extra money seems well worth it. Here's why. Black & Decker started with basically the same sanding machine as the Jet, but they made a number of modifications that eliminated most of the drawbacks of the Jet unit. For instance, the Black & Decker sander has a handy edge-sanding fence, one-knob tracking control, and a tension-release lever.

Whatever machine catches your fancy, follow these words of advice:

- Don't buy a machine without dust collection or flat, sturdy platens and tables.
- If you have the opportunity, test any machine before buying it.
- Don't buy a stationary belt sander that stalls when you apply firm pressure to the workpiece.
- If you change belts frequently, consider the amount of work needed to remove and adjust the belt before you purchase any machine.
- Stay away from any sander without a totally enclosed-fan cooled motor. Sanders throw off a lot of dust, and any open motor may become damaged from that dust.

***Note:** For information on buying and caring for abrasive belts, see the article on page 76.*

Written by Bill Krier
Technical Consultant: George Granseth
Photographs: Jim Kascoutas
Illustrations: Mike Henry

STATIONARY BELT SANDERS: LET'S GET TO THE NITTY–GRITTY

MANUFACTURER	MODEL	BELT SIZE (WIDTH × LENGTH, INCHES)	DISC SIZE (DIAMETER IN INCHES)	TYPE[1]	MOTOR RPM	MOTOR AMPS	MOTOR VOLTS	MOTOR TYPE[2]	FEET PER MINUTE (BELT)	TRACKING[3]	BELT ADJUSTMENTS REMOVAL[4]	BELT ADJUSTMENTS LOCKING TENSION RELEASE (Y,N)	BELT ADJUSTMENTS PLATEN MATERIAL[5]	TABLE MATERIAL BELT[6]	TABLE MATERIAL DISC[6]	DUST COLLECTION (Y,N)	COUNTRY OF ORIGIN[7]	WEIGHT (LBS.)	SUGGESTED PRICE[8]
AMT*	4150	1×42	8	S		MOTOR NOT INCLUDED[2]				K	B/G	N	S	S	CI	N	T	45	88
Delta	31-050	1×30	None	S	3450	2	120	T	3150	K	K/G	N	S	A	None	Y	T	13	93
Delta	31-460	4×36	6	V/H	3450	4	120	T	2000	K	S/G	Y	S	A	A	Y	T	42	173
Delta	31-730** 52-612	6×48	12	V/H	3450	20/10	115/230	T	3030	K	K/G	Y	CI	CI	CI	Y	U	288	1651
DeWalt (Black & Decker)	1765	6×48	10	V/H	3450	10	115	T	2700	K	S/G	Y	CI	CI	CI	Y	T	120	427
Dremel	730	1×30	5	S	4400	2	115	O	2700	S	K/G	N	S	S	S	N	U	15	139
Foley-Belsaw	4130901	6×89	None	E/H	3600	20/10	110/220	T	3900	K	K/G	Y	S	CI	None	Y	T	231	569
Grizzly*	61183	6×48	12	V/H	3450	12	110	TE	5000	K	L/G	N	CI	CI	CI	N	T	160	395
Grizzly	61531	6×80	None	E/HD	1720	18/9	110/220	T	2000	K	L/G	Y	CI	CI	None	Y	T	300	395
Jet*	JSG-96	6×48	9	V/H	1720	10	115	T	2174	B	S/G	N	CI	CI	CI	Y	T	119	339
Lobo*	SD-0069	6×48	9	V/H	1720	12	110	T	N/A	K	K	N	CI	A	A	N	T	130	259
Powermatic	30 B	6×48	12	V/H	1800	22/11	115/230	T	2850	K	K/G	Y	CI	CI	CI	Y	U	315	1049
Shopsmith	505642*** 505993	6×48	None	V/H	1150-1900 1725	8.8	115	O	900-1500 900-1350	K	K/B	Y	A	CI	None	Y	U	36 61	299 159
Total Shop	943	6×48	None	E/H	3600	7	115	T	N/A	K	L/G	Y	S	CI	None	Y	T	145	369

*Similar machines available from other manufacturers.
**31-730 is the sanding machine; 52-612 is the steel stand, including motor.

***505642 is the sanding machine, attachable to the Shopsmith Mark V; 505993 is the power stand that allows the machine to operate as a stand-alone unit. Top figures in boxes refer to sander when attached to Mark V. Bottom figures are for sander attached to power stand. Weight and prices refer to the separate units.

1. (S) Strip; (V) Vertical; (H) Horizontal; (E) Edge; (HD) Half-drum
2. Several motors available
3. (T) Totally enclosed-fan cooled
   (O) Open-drip proof
   (TE) Totally enclosed
4. (K) Knob-controlled; (S) Screw-controlled; (B) Bolt-controlled
5. Parts that you'll have to remove or manipulate in order to remove belt: (B) Bolts; (G) Belt guard; (S) Screws; (K) Knob; (L) Lever
6. (S) Steel; (CI) Cast iron; (A) Aluminum
7. (T) Taiwan; (U) U.S.A.
8. Prices often discounted 10–30% below list

MANUFACTURERS LISTING:

American Machine & Tool Co. (AMT)
Fourth Avenue and Spring Street
Royersford, PA 19468
215/948-0400

Black & Decker Inc.
P.O. Box 857
Hampstead, MD 21074
301/239-5300

Delta International
Machinery Corp.
246 Alpha Drive
Pittsburgh, PA 15238
Outside PA: 800-438-2486
PA residents: 800-438-2487

Dremel Corp.
4915 21st St.,
Racine, WI 53406
414/554-1390

Foley-Belsaw
6301 Equitable Road
Kansas City, MO 64141
Outside MO: 800-468-4449
MO residents: 800-892-8789

Grizzly Imports
P.O. Box 2069
Billingham, WA 98227
206/647-0801

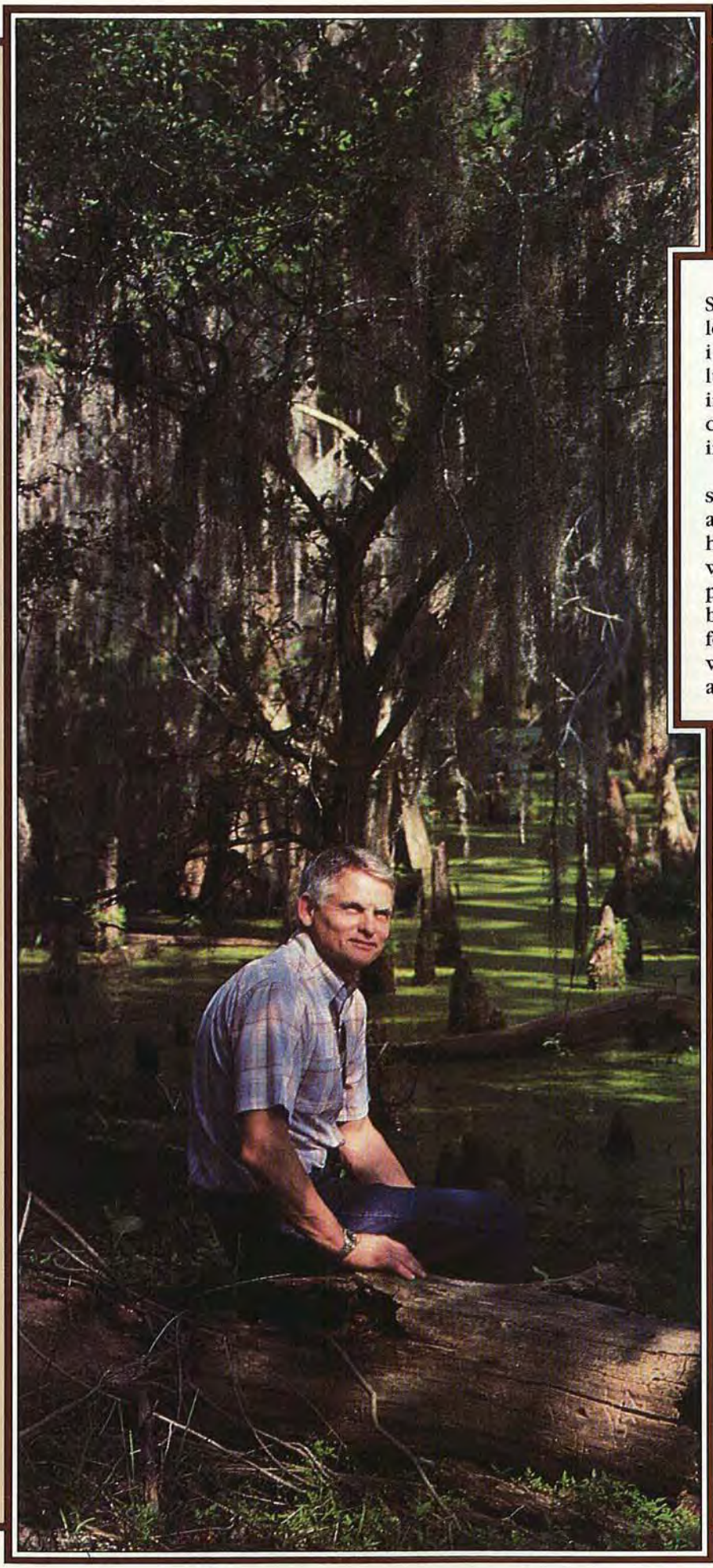
Jet Equipment & Tools
1901 Jefferson Ave.
P.O. Box 1477
Tacoma, WA 98402
Outside WA: 800-426-8402
WA residents: 206/572-5000

Lobo Power Tools
10922 Klingerman St., #3
South El Monte, CA 91733
818/350-1096

Powermatic
Morrison Road
McMinnville, TN 37110
Outside TN: 800-248-0144
TN residents: 615/473-5551

Shopsmith
3931 Image Drive
Dayton, OH 45414
800-445-4040

Total Shop
P.O. Box 16297
Greenville, SC 29606
Outside SC: 800-845-9356
SC residents: 803/288-4174



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IN LOUISIANA, GEORGE OLIVIER WORKS CYPRESS WITH

Some kids work their way through college by busing cafeteria tables, sweeping classroom floors, or, if they're lucky, doing some tutoring. But back in the '60s, George Olivier figured he could defray his tuition costs by repairing furniture.

When George left New Orleans to study agriculture at Northwest Louisiana State University in Natchitoches, he packed $75 worth of mail-order woodworking tools. With them, he repaired homes as well as furniture, and built study desks and chairs to sell. Before long, George's spare-time woodworking turned into a full-time love affair with wood and Natchitoches.

A half-dozen plantations sprawl the banks of the Cane River for 20 miles or so south of Natchitoches, Louisiana. Their immense, multiroomed "Big Houses"—like those shown on postcards depicting the Old South—attract visitors with displays of furnishings and finery from luxuriant days gone by. Giant armoires and heavily carved mahogany canopy beds, solid-cherry clawfoot tables, rosewood grand pianos, and massive sofas represent the elegance of pre-1860s plantation life.

Natchitoches (pronounced Naka-TISH), the oldest settlement in the Louisiana Purchase, is as much a landmark to grandeur as the outlying plantations. Formal plantings frame imposing town homes trimmed with filigreed ironwork. Many of the balconied buildings in the business district claim nearly two centuries of heritage. And a good percentage of the 16,000 people who call Natchitoches home bear names traceable to the town's founding in 1714.

On Second Street, a rambling brick building of uncertain linage

CREOLE CRAFTSMANSHIP

Now, more than 20 years later, George has made everything from armoires to chests, chairs to historic replications of doors and windows, and four-posters to cabriole legs. Along the way, the self-taught, 49-year-old craftsman has earned himself a trusted local reputation. On his daily fitness walks, "Hi, George" rings out from friends in every block.

George's fascination for woodworking has only grown over the years. He practically lives in his shop. Even his visits to a nearby bayou are woodworking oriented. There, George marvels at the wild majesty of the cypress from which he creates furniture.

▲ **In Louisiana's climate, George often chooses to bring work out in the sunshine. To shape the bombé chest, George takes off cypress with an "inshave" or scorp. Under his attack, the chips really fly.**

carries the sign "Olivier's Creole Cypress Furniture." Locals find nothing unusual in its phrasing. But to visiting Yankees, the words usually require some explanation.

First, as George Olivier will proudly tell you, he's a genuine Creole—a direct descendent of Louisiana's first French settlers. A peek into the showroom confirms that the term also describes his distinctive furniture's pedigree—born of French Quarter refinement yet as down home as file gumbo. And cypress. To George, no other wood reflects the haunting beauty of the bayous he so loves to wander.

FURNITURE AS COMFORTABLE AS AN OLD RUG

George knows well the southern Empire-style furniture the plantation owners favored. He has browsed the tall-ceilinged rooms of the Big Houses and closely noted the furniture's lines and details.

More than curious, he intends to peer back through history to the early 19th century and look over the shoulders of those who shaped the now-priceless pieces. Today, in his workshop, he reassembles much of the past, and employs the knowledge to craft—in native cypress—his own style.

"Originally, Empire furniture was done in mahogany and fancy veneers," George explains as he runs a hand through his closely cropped hair. "I can't reproduce in cypress everything early furnituremakers did. Many pieces, though, look better to me made in native cypress."

Why, then, when George so keenly appreciates the furniture of yesterday's masters, does he use cypress? Stimulating thought with a brush of the stubble on his chin, he explains. "It's not so much what wood you use, but how you use it. What a craftsman sells is craftmanship. Wood is only the vehicle. And, cypress has gone down the road with me—I can tell where it grew by how it smells."

George bills his basic product, a pleasing-to-look-at pencil-post bed, as "Country style in Cajun cypress." Yet other pieces of George's cypress furniture, although they carry the herculean lines he admires, also cast a casual, friendly image. "My pieces are mighty comfortable to be with, not so fine that you think you're livin' in a museum."

Again, he pauses to study the satiny top of a bombé chest. "You can make something so fine you can't enjoy it. Furniture has to be functional, laid back, like a good ol' rug. It has craftsmanship, historic lines, and the material makes it real."

SHAPING CHARACTER IN STOUT SWAMP STOCK

"All kiln-dried, select-grade lumber looks like plastic to me," says George. "I like No. 2 grade with the knots, splits, pecks, worm holes—all the little surprises."

The furniture industry calls the surprises George finds in cypress "character marks." George arranges them in his furniture as an artist would place color in a painting.

"When I make a headboard, for instance, I try to balance its beauty. If I put a board with a knot on the left side, I try to balance that with good graining on the right," he explains. "The piece has to have a nice soothin' flow of visual activity, you might say."

Continued

CREOLE CRAFTSMANSHIP

George's palette of character marks sometimes show up in the least expected places. "I like to have a knot in my moldin's. You never see a knot in anyone else's moldin's. But doin' it takes a little bit more care," he advises. "If I knock the knot out, I gotta put it back in, fill it, and sand it."

To fill cracks, holes, and star-cracked knots, the Creole craftsman mixes powdered tempera colors with powdered water-base putty. By varying the amount of colored powder, George blends the filler with any of the wood's varying tones.

FRESH-AIR WOODWORKING, NATCHITOCHES STYLE

Woodworkers north of the Mason-Dixon line would envy George's working conditions. Instead of a confining basement or half of a two-car garage, this warm-weather woodworker spreads his machines and tools on the floor of a 50×60′ tin-roofed, open-sided shop.

Vine-laden lattice forms the back wall. It provides privacy without blocking airflow. There isn't a front wall. So, George can take a workpiece outside under the big pecan tree when the spirit moves him. Inside, long spans of laminated beams mean few interfering posts. The expanse of concrete floor allows George to prowl like a lion in his lair from one project to another.

In racks at a far end of the shop, thousands of board feet of rough-sawed cypress lay waiting their turn through the planer. The boards are 1″ or 2″ thick and no wider than 8″. "I can get cypress boards 2′ wide, but I stick to 1×8s and 2×8s," says George.

"Consistency is important. I don't want to make one tabletop with two boards in it and come 'round the next time with eight! It's like sellin' eggs: You don't put one big egg in with 11 regular ones."

TUNG OIL WITH A BLOOM

A small and tidy backyard separates George's shop from the brick building facing the street. Across the path from the young cypress he planted a few years ago stands a small palmlike tree. "That's a tung oil tree [*Aleurites fordi*] from China. I wanted to see where my finish comes from, too!" George laughs, but the remark only characterizes his driving curiosity, a trait that led him away from the spray gun.

"For 20 years I sprayed lacquer because I didn't know how to work with an oil finish. But when I made up my mind, I finally figured out how to get tung oil to bloom," he says.

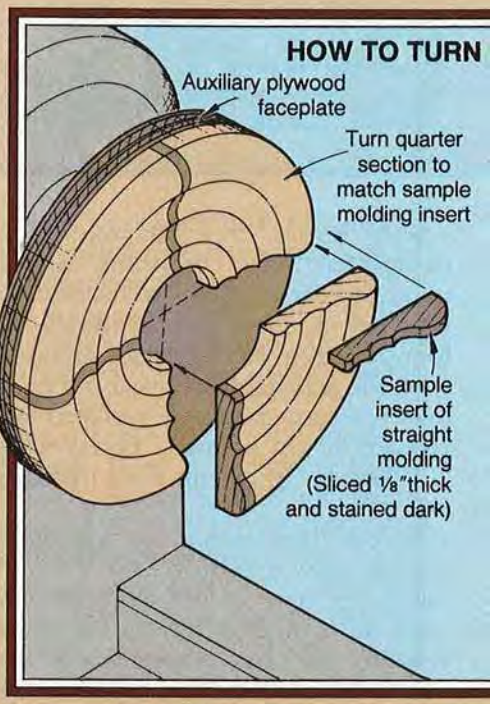
In George's workshop, bloom means shine. And he has the technique down pat. After a final sanding of his furniture with 220-grit paper "to polish it," he darkens the cypress with a walnut oil stain. "Then," he says, "I put pure tung oil (cut 50/50 with mineral spirits) on three times, each time wiping the excess off with a rough rag before it dries. For the finish to work, you can't let the oil dry completely between coats, and never wipe it off across the grain! Once you get enough on, let it dry until you can sand it and get dust. Now, here's how to make that finish bloom: Apply a paste wax, let it dry, and then buff it. It'll look better than hand-rubbed varnish."

TODAY'S SOLUTIONS FOR YESTERDAY'S PUZZLES

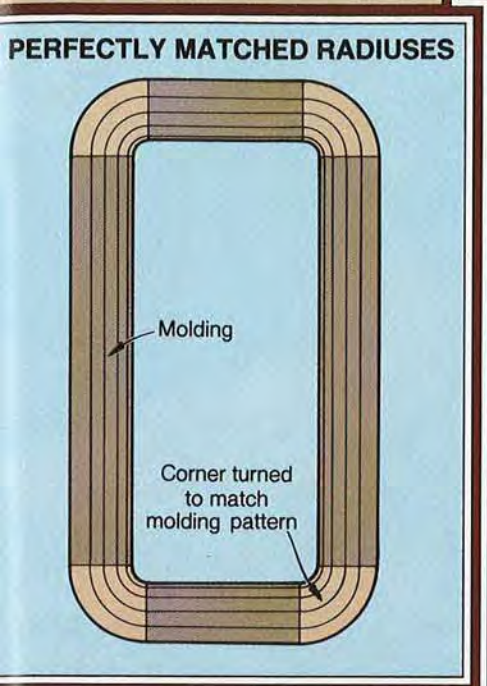
George's constant search to solve some of the woodworking puzzles posed by last century's craftsmen often proves frustrating. Disassembling a piece of furniture worth thousands is impossible. Instead, he relies on his intuition and trial-and-error. And, he's found satisfaction.

In the same manner that he finally mastered a tung-oil finish, George thought out and tried all the possibilities to make perfectly matched radius moldings. These pie-shaped pieces complete the corners on massive, rounded mirror frames and the cornice trim on Empire beds and armoires. George found the solution on the lathe.

To craft four matched corners, George first attaches an auxiliary plywood disc to the faceplate. He divides the disc into equal quarters exactly from center and marks the divisions with a pencil. George then cuts four pieces of stock to fit into the quarters.


HOW TO TURN
Auxiliary plywood faceplate
Turn quarter section to match sample molding insert
Sample insert of straight molding (Sliced ⅛″ thick and stained dark)

▲ Knots in No. 2 cypress are some of the little surprises that give visual interest to George's furniture, even though these character marks mean extra finishing work. "My pieces have a soothin' flow of visual activity, you might say," he proudly remarks.



▲ This 8′ bedpost almost fills the 9′ lathe bed. George sands concave areas with a sandpaper-wrapped dowel.

With canopy, this queen-sized, ▶ southern Empire-style bed stands 8′8″ tall and sells for $3,800.

From a straight section of the original molding, he slices off four ⅛″-thick pieces and darkens them with stain. Next, George assembles the quarter sections on the faceplate with the slices of molding separating each quarter, as illustrated *above*. A web clamp helps hold the pieces together while he centers them. George then clamps the centered assembly to the faceplate, flips it over, and secures the four parts with screws from the back side. George shapes the moldings on the lathe with a gouge, stopping occasionally to see how close he's coming to the originals. Sanding completes them. "Those little slices of dark moldin' help you tell where you're at," he notes.

AN ACTIVE MIND TO HELP HANDS SHAPE WOOD

Idleness occupies little time in George's shop. When his hands aren't shaping wood, his mind is. For instance, the partial solution to his next woodworking mystery lies on a tabletop in his living room.

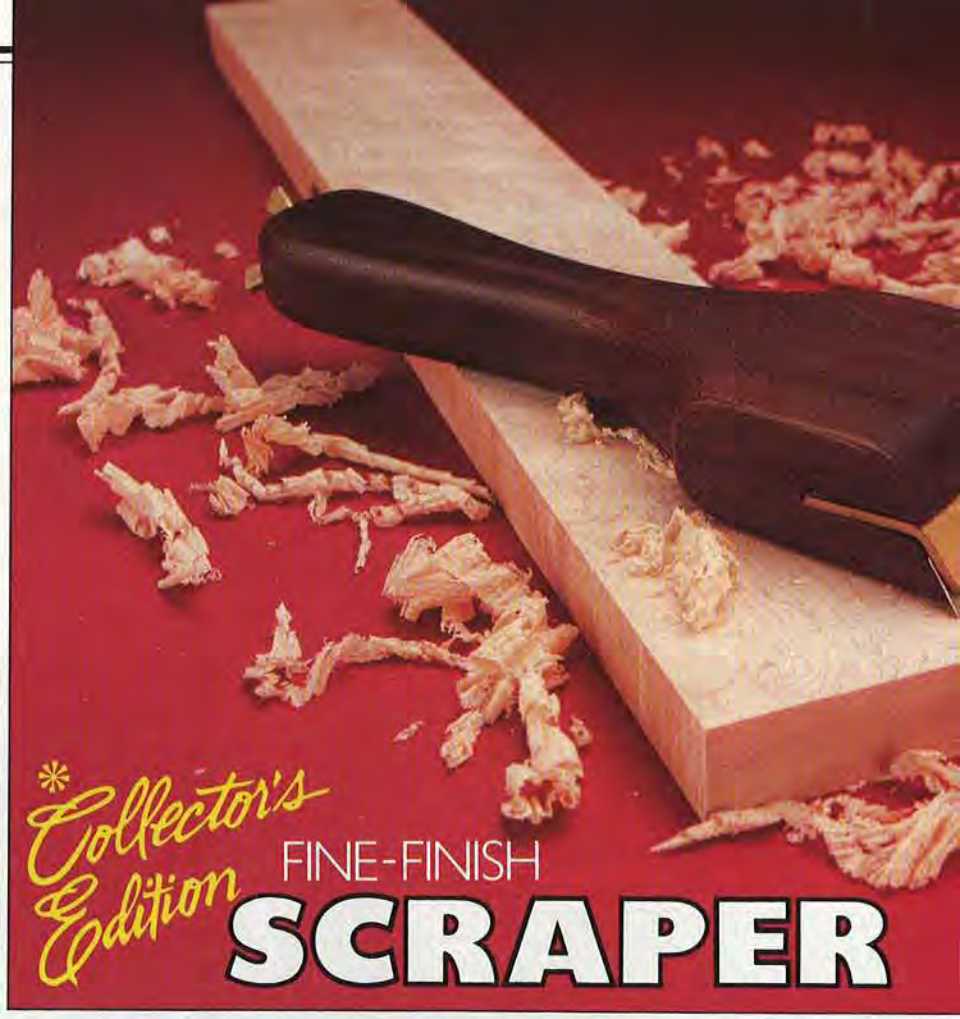
Sketches and detailed drawings, many erased and repenciled, re-create on paper the probable assembly of a southern Empire bedpost. Standing 8′7½″ tall, the post was first created in the shop of Prudent Millard, a furnituremaker who established himself in New Orleans' French Quarter in 1838.

Made of two dozen intricately laid-up pieces, the post dwarfs even the giant bed in George's showroom. George doesn't know when he'll be able to re-create the huge post in cypress. "The only key to buildin' this post was thrown away 100 years ago. But I'll get it, and when I do, it'll be like openin' a new vault of knowledge."

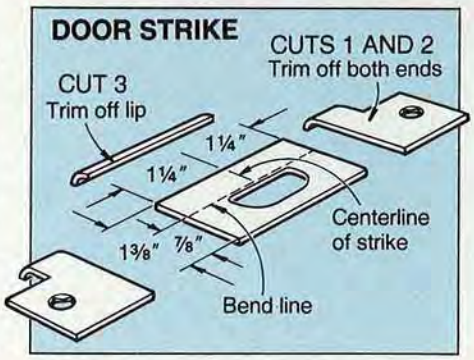
Written by Peter J. Stephano Photographs: Jim Elder Illustration: Kim Downing

Print this article

Before coming to *WOOD*® magazine and building all our projects, Jim Boelling spent 10 years as a furniture machinist. One of Jim's fellow cabinetmakers, Marvin Barsness, often made his own tools for scraping surfaces prior to finishing and for removing glue squeeze-out. Now, Jim has improved on Marvin's design for a scraper that's as comfortable as it is good looking. The adjustable blade makes getting into tight corners a snap.



*Collector's Edition FINE-FINISH SCRAPER



HOW TO GET A HANDLE ON THIS PROJECT

1 Cut a ½"-thick piece of walnut to 2½" wide by 17" long for the handle parts (A, B). (We resawed a piece of ¾" walnut to ½" thick; you also could plane or joint a thicker piece to ½".) Crosscut the 17" walnut strip in half.

2 Cut or rout a ¼" groove ¼" deep down the center of part A where shown on the Exploded-View Drawing. (We used a dado blade on the tablesaw to cut the groove.)

3 Using a dado blade on either the tablesaw or radialsaw, cut a 1¼" rabbet 3⁄32" deep across the grooved face of the handle bottom (A).

4 Tilt your saw blade 40° from vertical, and bevel-cut the front end of each handle part.

5 Glue and clamp the handle pieces together with the edges flush. Align the mitered ends where shown on the Side View Detail.

6 Using carbon paper or a photocopy, transfer the full-sized handle pattern shown on page 77 to heavy paper or posterboard. Cut the paper template to shape, and trace its outline onto the *bottom* face of the walnut handle lamination. Bandsaw the handle to shape. Drum-sand the contours smooth to remove the saw marks.

7 Chuck a ⅜" round-over bit into your table-mounted router. Rout the handle where shown on the Exploded-View Drawing. Sand a ½" round-over on the front top end of the handle where shown on the same drawing. Sand the handle smooth and apply the finish.

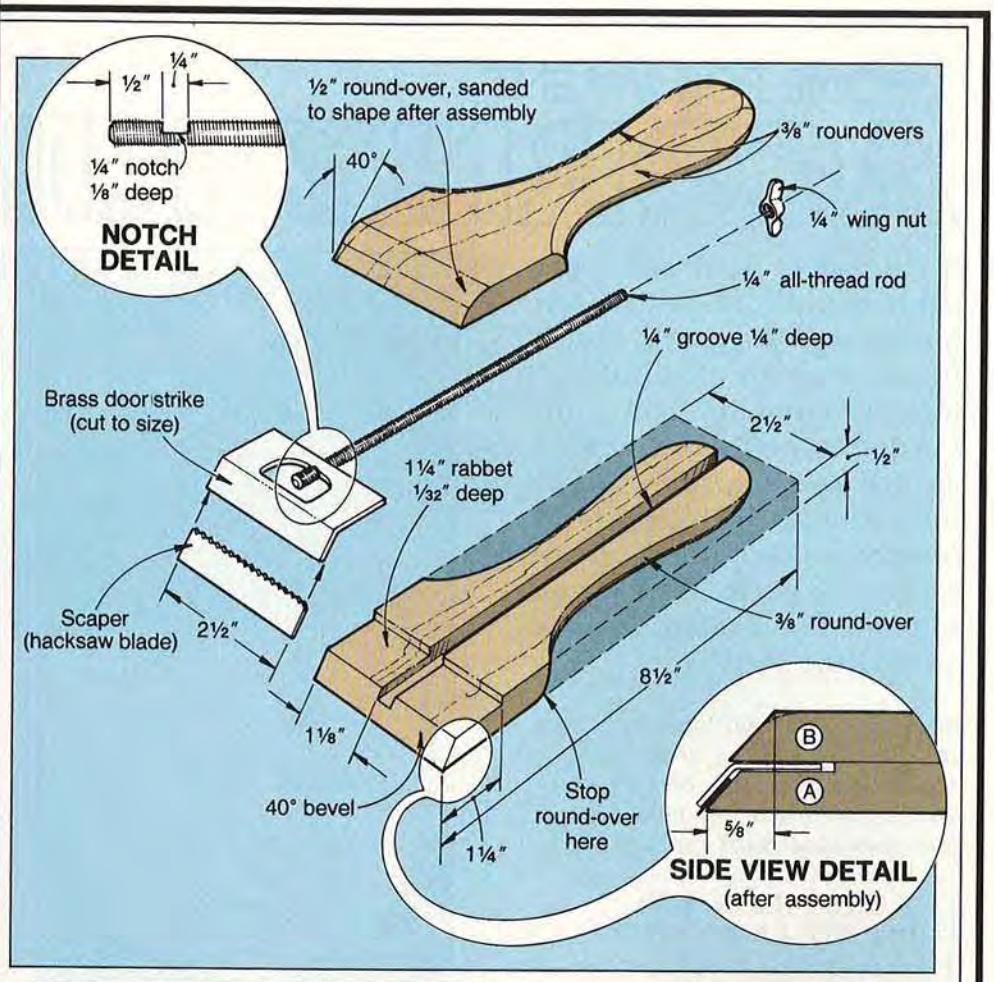
CUT, SHAPE, AND ADD THE HARDWARE

1 Apply masking tape to the polished side (the top face) of a solid-brass door strike. (We used a Schlage ANSI 10-025605 polished-brass strike; see the Buying Guide for our hardware kit.) The tape is easy to mark cutlines on, and helps prevent the polished brass from being marred when cutting.

2 Mark a centerline across the strike where shown on the Door Strike Drawing. Using the dimensions on the drawing, trim the strike ends and front lip. File the cut edges to remove burrs.

3 Clamp ⅞" of the strike in a vise and bend the exposed portion as shown on the drawing *above*. Place the strike in the handle to check the angle; continue bending until the angle is the same as the front of the handle. (See the Side View Detail accompanying the Exploded-View Drawing for reference.)

4 Cut a 7½" length of ¼" all-thread rod. As shown in photo A, use a



Secure the all-thread rod in a vise or handscrew clamp, and file a ¼" notch ⅛" deep ½" from the end.

Scribe marks every 2½" on the hacksaw blade. Then, shear scraper blades to length with a cold chisel.

Angle the scraper slightly less than 45°. Using straight strokes, file the blade with a mill bastard file.

#8 mill bastard file to cut a notch in the threaded rod. See the Notch Detail for dimensions. (We wrapped masking tape around the rod to mark the notch location on the rod and to prevent marring the rod threads in the vise.)

5 To make the scraper blades, mark increments every 2½" on a used or dull hacksaw blade. Clamp the blade in a vise. Using a cold chisel, shear off the blade segments where marked as shown in the photo B. Hammer the corners of each blade flat—they tend to bend slightly when chiseling to length.

6 Assemble the scraper, and slip the scraper blade into position. Tighten the wing nut on the all-thread rod to hold the scraper blade firmly in position. (We keep about ⅛" of the blade exposed).

TIME TO SHARPEN

To sharpen the scraper blade, angle the scraper as shown in photo C, and sharpen with a mill bastard file. As you move the file back and forth, keep the file in contact with the total length of the blade to avoid curving the blade. (We held our scraper slightly less than 45° when sharpening.)

BUYING GUIDE

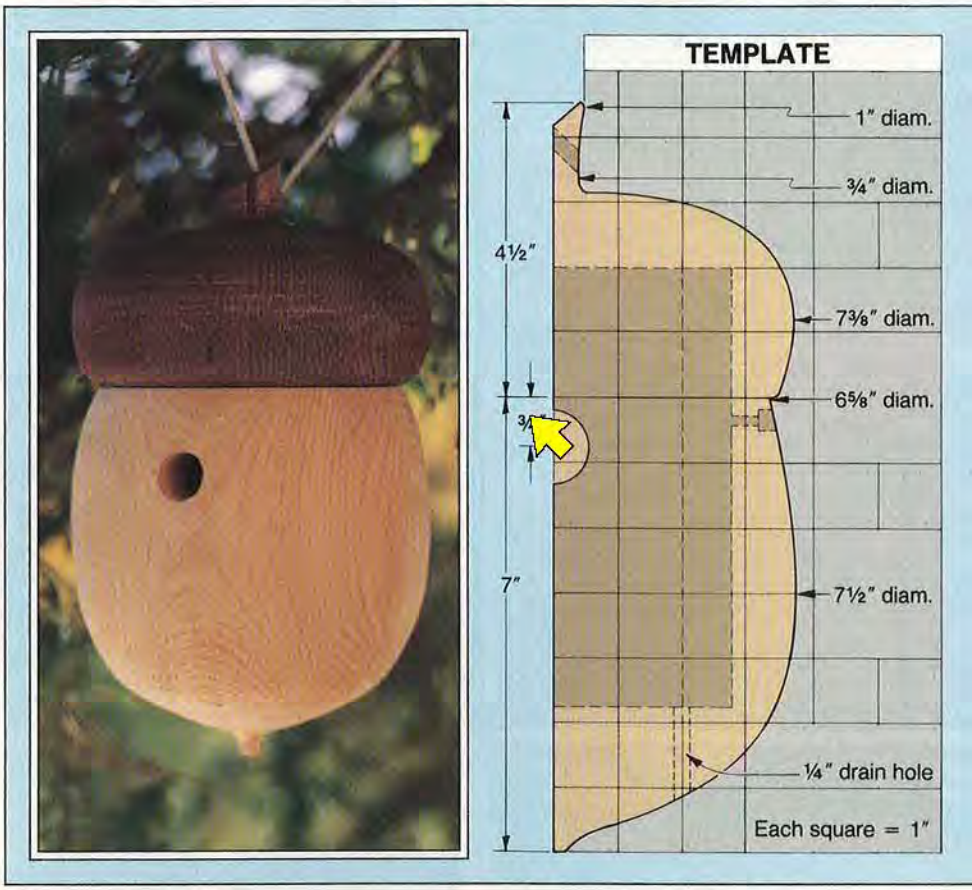
● **Scraper hardware kit.** Brass strike plate, ¼" brass wing nut, ¼" all-thread rod 7½" long, $6.50 ppd. from Kurtz Hardware, 1473 Keo Way, Des Moines, IA 50314.

Photographs: Bob Calmer
Illustrations: Kim Downing; Bill Zaun

Print this article

HOME FOR WRENT
ACORNY KIND OF

If chickadees or wrens could talk (they do, of course, but not in our language), they'd thank you for this not-so-humble domicile. We've included everything a bird desires—nesting space, ventilation, and drainage—and omitted a perch at the advice of bird experts. Here's one nut you won't mind hanging around the yard.



Note: For information on sizing, finishing, hanging, and cleaning birdhouses, see our birdhouse requirement article on page 78 and our birdhouse chart on page 80.

CUT THE PIECES AND FORM THE LAMINATION

1 From 2×10 stock (we used spruce), cut five pieces measuring 7½×11½" for parts A, B, and C. Now, as dimensioned on the Lamination Drawing, lay out the openings in parts B and C. Drill a ⅜" blade-start hole, and cut each opening to shape with a jigsaw.

2 With the edges and ends flush, glue and clamp the five pieces. (We used plastic-resin glue—an inexpensive, water-resistant adhesive. See the Buying Guide for our source.) Let the glue dry overnight.

MAKE THE TEMPLATE AND TURN THE ACORN TO SHAPE

1 Cut a piece of poster board to 6×12". Starting at the bottom, draw a 1" grid on the paper. Lay out the shape of half of the birdhouse on the marked grid, using the Grid Half Pattern as a guide. To do this, mark the points where the pattern outline crosses each grid line. Draw lines to connect the points. Cut the template to shape.

2 Draw diagonals on both ends of the birdhouse lamination to find centers. Using a center punch and a mallet, make an indentation at each marked centerpoint.

3 For ease in turning round, use a compass to draw a 7½"-diameter circle on one end of the lamination. Then, chamfer each corner of the lamination, cutting outside of the marked circle.

4 Mount the lamination between centers, centering the headstock and tailstock points at the indented centerpoints.

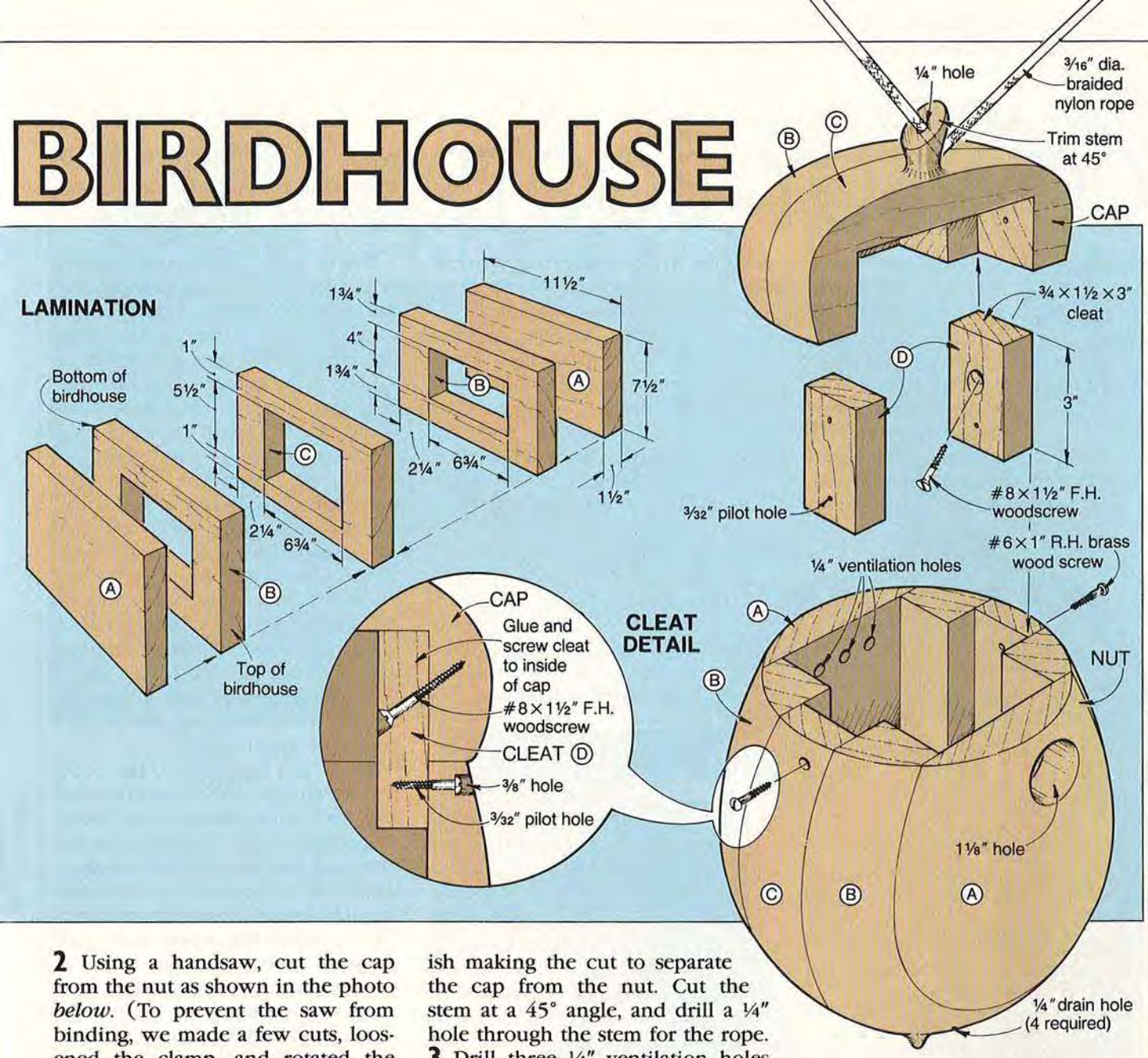
5 With a 1" gouge, turn the lamination round. Now, turn the lamination to shape, using the template as a guide. Turn the top and bottom of the acorn last; you'll want plenty of stock at both ends when turning the profile to shape. (We used a 1" and a ½" gouge, as well as a parting tool, to do the shaping.) For a natural texture, we left our project rough and did not sand it.

DRILL THE ENTRANCE HOLE AND CUT OFF THE LID

1 As shown in the photo *below*, clamp the spur center with a handscrew clamp. Position the bottom of the clamp on the lathe bed to prevent the acorn from turning. Drill a 1⅛" hole where dimensioned on the Grid Half Pattern.

Clamp the spur center to hold the birdhouse firmly in position, and drill a 1⅛" hole into the cavity.

BIRDHOUSE



2 Using a handsaw, cut the cap from the nut as shown in the photo *below.* (To prevent the saw from binding, we made a few cuts, loosened the clamp, and rotated the acorn a quarter turn. Then, we retightened the clamp, made a few more cuts, and rotated again.) Remove the acorn from the lathe. Finish making the cut to separate the cap from the nut. Cut the stem at a 45° angle, and drill a ¼" hole through the stem for the rope.

3 Drill three ¼" ventilation holes and four ¼" drainage holes (see the Grid Half Pattern and Exploded-View Drawing for reference).

Using a handsaw, make cuts all the way around the laminated turning to seperate the cap from the nut.

ADD THE CLEATS, APPLY THE FINISH, AND HANG

1 Cut two cleats (D) to ¾ × 1½ × 3". Glue and screw them to the inside of the cap (see the Exploded-View Drawing and accompanying Cleat Detail for reference). Let the glue dry overnight.

2 To attach the cap, position the cap on the nut and drill the two holes as dimensioned on the Cleat Detail. Fasten the cap to the nut.

3 Finish the outside but not the inside of the birdhouse. (We stained the cap, and then applied two coats of clear water sealant to both the cap and the nut.)

4 Run a 3/16"-diameter braided nylon rope through the hole and hang from a limb. To prevent the birdhouse from spinning in the wind, double the rope as shown in the opening photograph and on the Exploded-View Drawing.

BUYING GUIDE

● **Plastic-resin glue.** Mixes with water for a smooth-spreading, tan-colored glue. Catalog no. N1201, one pound for $10.35 ppd. The Woodworkers' Store, 21801 Industrial Blvd., Rogers, MN 55374.

Illustrations: Kim Downing; Bill Zaun Photographs: Bob Calmer

Print this article

CARVE A PAIR OF COWBOY BOOTS

Kick up your heels with this western pattern from Arizona's Dave Rushlo.

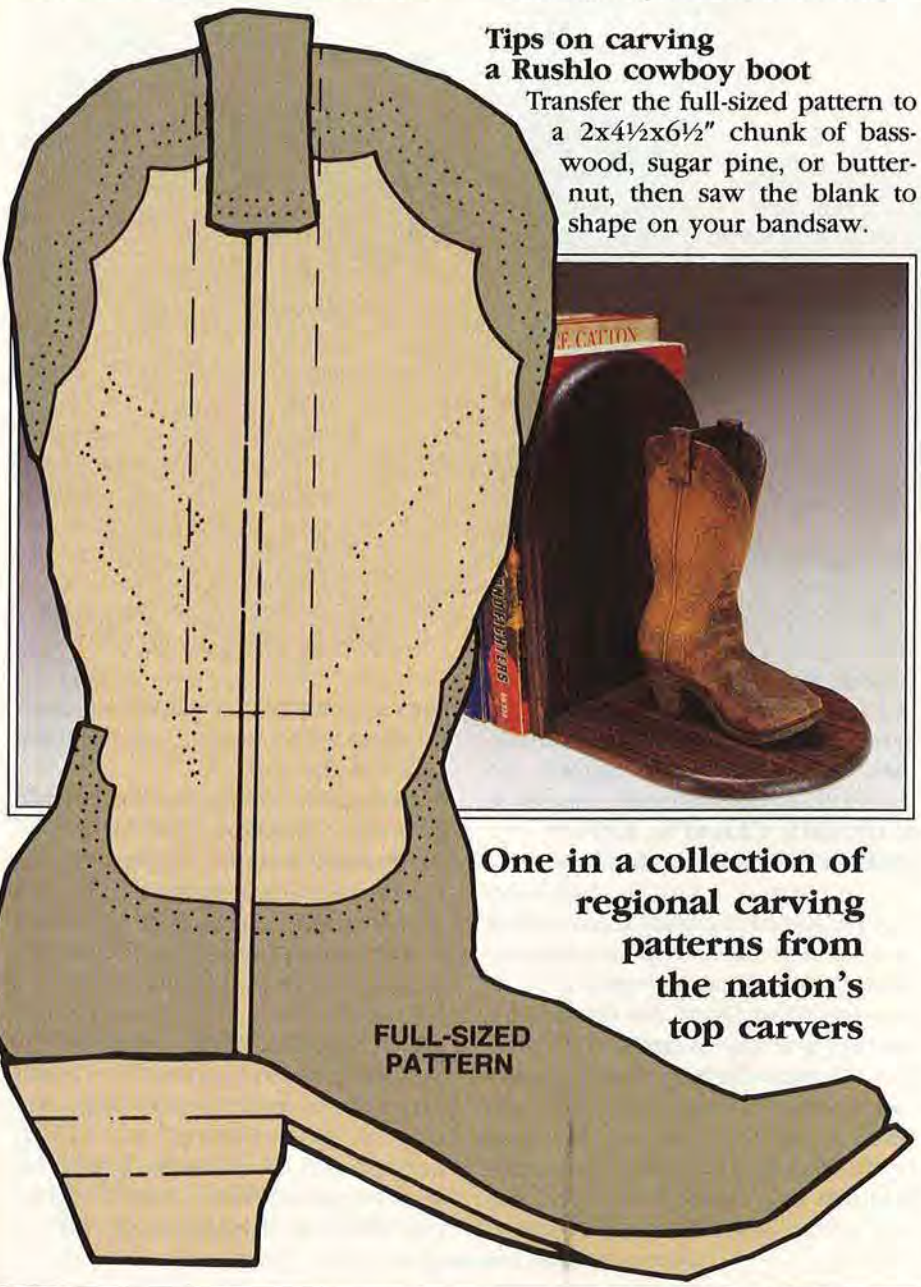
Dave Rushlo

Woodcarver Dave Rushlo and his whittling wife, Joan, live in Scottsdale, Arizona. But, they're admittedly snowbirds. The Rushlos spend the summer and early fall months in the North attending carving shows and teaching how-to seminars, then head back to Arizona for the winter. There, the Rushlos carve, as well as sell tools and books by mail.

Dave gets ideas for carvings from his travels. He never passes by a small-town rodeo, outdoor auction, cafe, or truck stop. His trained eyes record what he sees, such as the boots shown here. They represent a "go-to-town" style, but not quite "Saturday-night kickers," he says.

Tips on carving a Rushlo cowboy boot

Transfer the full-sized pattern to a 2x4½x6½" chunk of basswood, sugar pine, or butternut, then saw the blank to shape on your bandsaw.



One in a collection of regional carving patterns from the nation's top carvers

Drill a ⅝" pilot hole in to the top of the boot as indicated by the dotted lines. Next, draw a vertical centerline all the way around the boot from the center of the toe to the center of the heel. Do the same thing on the boot sides where the seam will be.

Start the carving by rounding the boot shaft (from the ankle up) from centerline to centerline. Then, draw in the sole pattern and remove wood from the sole and heel. "I draw in the sole close to ¼" thick the first time, otherwise it will end up too thin. With a V-tool lying on its side to get a straight line, I outline the sole first," says Dave. With the shaft and sole established, you can now shape the boot's toe and instep.

When you have shaped the boot, remove all saw marks from the sole and heel with shaving cuts. Now, begin detailing. "I clean up the stop cut around the sole with a sharp-pointed knife, then thin out the sole," says the cowboy carver. "Next, detail the seams and pull straps on your boot."

Carve out the inside of the boot so the walls taper from ¼" thick at the bottom to ⅛" thick at the top. According to Dave, you can add the boot stitches by dotting with an awl or a needle point on a woodburning tool.

Stains bring your boots to life

"I don't sand my woodcarvings, and it's not necessary to first apply a sealer under the Carver Tripp brand stains I use," notes Dave. "To eliminate the possibility of a dark stain on endgrain, I saturate the entire boot with turpentine before staining. You may have to stain more than once to get the exact color you want and still let the woodgrain show through," advises the carver.

Design: Dave Rushlo
Photograph: Jim Kascoutas

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A SOUTHWEST-INSPIRED BOWL

Continued from page 35

3 Using the drawing at *right* as a guide, make a full-sized template on heavy paper or thin cardboard.

4 With your lathe running at about 500 rpm, shape the outside of the bowl, frequently checking the shape of the bowl against the template. (We used a 1⅜" bullnosed scraper.) Then, shape the inside of the bowl. (We turned the bowl wall to a ½" thickness and then sanded the wall to ⅜" thick. Finally, we power-sanded the bowl as shown in photo J on page 31.)

5 Finish the bowl. (We applied two coats of lacquer sanding sealer followed by several coats of polymerized tung oil.)

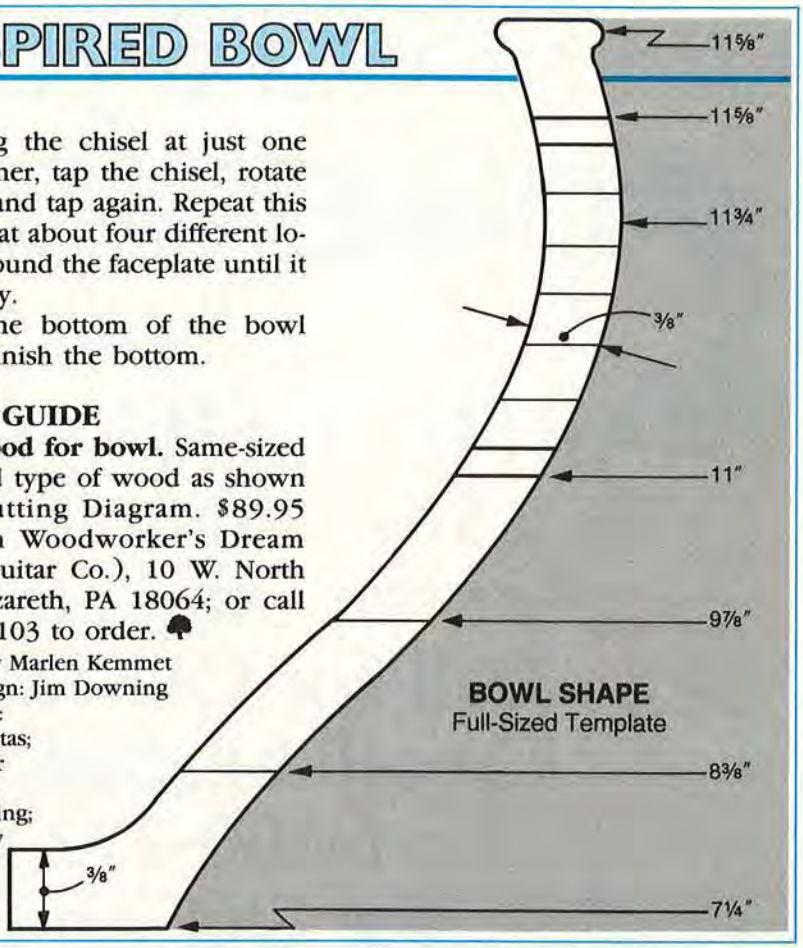
6 Now you're ready to part the bowl from the auxiliary faceplate by splitting the plywood one or two plies away from the bowl. We suggest you ask a helper to steady the bowl while you carefully tap a 1" chisel with a mallet. Don't try to split a ply in the auxiliary faceplate by driving the chisel at just one point. Rather, tap the chisel, rotate the bowl and tap again. Repeat this operation at about four different locations around the faceplate until it splits easily.

7 Sand the bottom of the bowl smooth. Finish the bottom.

BUYING GUIDE

● **Hardwood for bowl.** Same-sized pieces and type of wood as shown in the Cutting Diagram. $89.95 ppd. from Woodworker's Dream (Martin Guitar Co.), 10 W. North Street, Nazareth, PA 18064; or call 800-345-3103 to order.

Produced by Marlen Kemmet
Project Design: Jim Downing
Photographs:
Jim Kascoutas;
Bob Calmer
Illustrations:
Kim Downing;
Mike Henry



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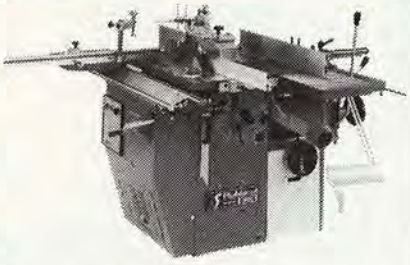

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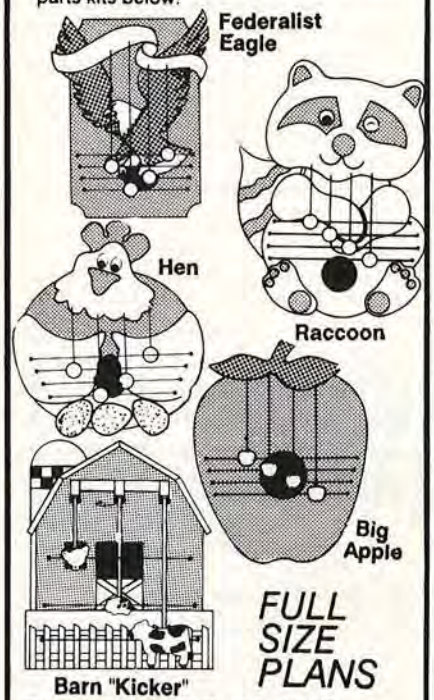

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HOW TO BUY AND CARE FOR YOUR SANDING BELTS

As we tested the machines brought in for the stationary belt sander article on page 58, we noticed that about half of the machines had warped abrasive belts. Since this sort of warpage creates rounded corners on your workpieces, we sought some answers to this problem. We turned for help to Wayne Lee, a product engineer with the Coated Abrasives Division of Norton Co., a leading producer of sanding belts. Here's what Wayne had to say.

DON'T LET YOUR ABRASIVES RUB YOU THE WRONG WAY

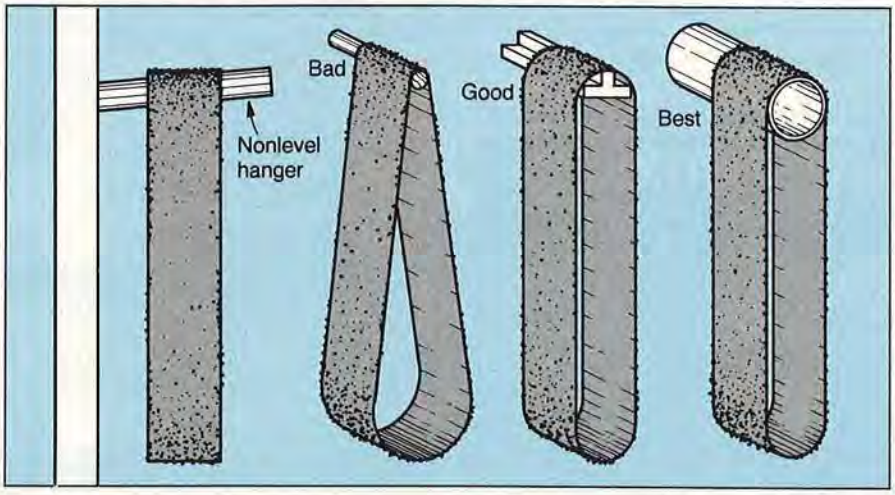
- Like wood, belts cup in two directions, either forming a bulge in their center (dry conditions) or rolling up on their edges (moist conditions), as they sit on a platen. To prevent this from happening, store your belts in a climate of 70° and 50 percent humidity.
- If you can't maintain this climate in your shop—and few of us can—Wayne suggests buying polyester-backed sanding belts. Unlike paper- or cloth-backed belts, polyester belts will not absorb any moisture, making them more resistant to warpage than other belts. When they become loaded with sanding debris, you can even clean polyester-backed belts by scrubbing them with water and a water-soluble cleaner. If your local abrasive distributor doesn't carry polyester belts, see the buying guide *below.*

TENSION RELIEVERS

- When you finish using your sander, release the tension on the belt. This can be a hassle with some machines, but not with those that have a locking tension release lever (see the stationary belt sander buymanship chart on page 63).
- As shown *below,* you can extend belt life and improve your machine's performance by properly hanging the belts on cylinders that match the diameter of the rollers on your sanding machine. A narrow hanger such as a peg may damage the backing as well as the bonding that holds the abrasive grit to the backing. A nonlevel hanger may damage the edge of the belt and cause tracking problems.

BUYING GUIDE

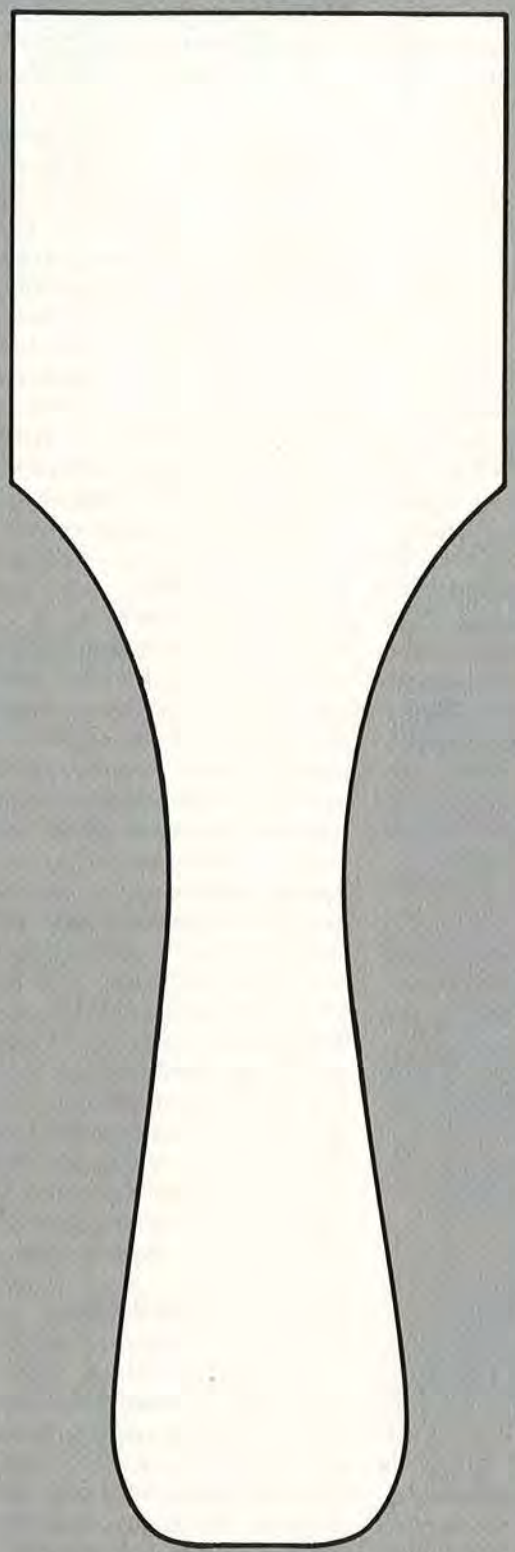
- **Polyester sanding belts.** Available from Norton and Klingspor distributors or by mail from Industrial Abrasives Co. 6×48" belts in 50, 80, 120, and 220 grits, $3.55 each plus postage. Larger sizes also available. Call 800-428-2222 for ordering information (Pa. residents call 800-222-2292).



Illustrations: Mike Henry

FINE-FINISH **SCRAPER**

Continued from page 69



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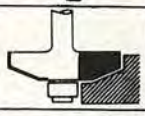
	#02	3/8" R	3/8"	1-1/4"	9/16"	14.00
	#03	1/2" R	1/2"	1-1/2"	5/8"	15.00
		ROUND OVER				
	#04	1/4" R	1/4"	1"	1/2"	$15.00
	#05	3/8" R	3/8"	1-1/4"	5/8"	16.00
	#06	1/2" R	1/2"	1-1/2"	3/4"	19.00
		ROMAN OGEE				
	#07	5/32" R	5/32"	1-1/4"	15/32"	$18.00
	#08	1/4" R	1/4"	1-1/2"	3/4"	20.00
	#11	3/8" RABBETING	Deep 3/8"	1-1/4"	1/2"	$14.00
	#09	1/8" (KERF) SLOT CUTTER		1-1/4"	1/8"	14.00
	#10	1/4" (KERF) SLOT CUTTER		1-1/4"	1/4"	14.00
	#12	45° Chamfer	45° Angle	1-1/2"	5/8"	$15.00
	#15	Raised Panel	20° Angle	1-5/8"	1/2"	$25.00
	#35	1/4" V Groove 90°		1/4"	1/4"	$ 8.00
	#36	3/8" V Groove 90°		3/8"	3/8"	9.00
	#37	1/2" V Groove 90°		1/2"	1/2"	11.00
	#16	3/8" Dovetail 9°		3/8"	3/8"	$ 7.50
	#80	1/2" Dovetail 8° (For Leigh Jigs)		1/2"	13/16"	12.00
	#17	1/2" Dovetail 14°		1/2"	1/2"	8.50
	#18	3/4" Dovetail 14°		3/4"	7/8"	10.50
		CORE BOX (ROUND NOSE)				
	#19	3/8" Core Box	3/16"	3/8"	3/8"	$11.00
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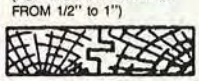
	#21	3/4" Core Box	3/8"	3/4"	5/8"	18.00
	#056	Tongue & Groove (FOR WOOD THICKNESS FROM 1/2" to 1") 		1-5/8"	1"	$30.00
	#24	1/4" Straight Bit		1/4"	3/4"	$ 7.00
	#25	5/16" Straight Bit		5/16"	1"	7.00
	#26	3/8" Straight Bit		3/8"	1"	7.00
	#27	1/2" Straight Bit		1/2"	1"	7.00
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WHAT CHOOSY BIRDS LOOK FOR WHEN THEY GO HOUSE HUNTING

When he's not behind his desk as staff naturalist for *Bird Watcher's Digest*, Lynn Barnhart monitors a 25-mile trail of bluebird houses or takes on a bird-banding operation. We were pleased when this Ohio resident took time from his busy schedule to offer us some professional advice on birdhouses (also called nest boxes).

WHERE BIRDS HANG OUT

Where you hang your birdhouse determines which species will nest in it. Smaller nesting boxes placed in wooded areas will likely attract chickadees, nuthatches, titmice, and woodpeckers. Large houses in wooded areas attract owls and with water nearby, wood ducks. The smaller box, placed along brushy hedgerow between field and forest, draws wrens and deermice. Larger boxes located in the same terrain, or in small patches of trees surrounded by open fields, may summon kestrel and barn owls. Boxes placed along country roads that run through open farmland provide an inviting home for bluebirds.

Unfortunately, boxes placed near a farm or home primarily attract pesky house sparrows. They'll take over and keep other, more desirable birds from using the nesting box. The sometimes-ruthless sparrows even kill occupants already nesting in the box.

SUPPORT YOUR LOCAL BIRDHOUSE

How high you hang your house isn't as crucial as you might think. (See chart on page 80.) Warblers, chickadees, wrens, and bluebirds nest in boxes placed anywhere from 4–15′ above the ground. However, heeding the following guidelines will pay big dividends:

- Fasten your birdhouse firmly to a tree trunk, pole, or post, and place it in such a way that you can get to it to monitor for unwanted species and clean it.
- If you hang it from a tree limb with wire or rope, use a two-point attaching system to minimize swaying. A birdhouse supported by only one line will be unstable and allow the box to move too freely, discouraging possible nesters.
- Orient the birdhouse entrance away from prevailing winds and perpendicular to the ground.
- The entrance hole should face straight out or angle slightly downward to keep rain from being blown into the nesting box.
- Also, if possible, position the house so it is out of direct sunlight for at least part of the day. Shade helps keep the box cooler.

TO FINISH OR NOT TO FINISH

A weathered, unpainted box looks the best—naturally. But unless you make the box of decay-resistant cedar, redwood, or cypress, you'll probably want to protect it with an exterior finish. Almost any finish will do, but never finish the birdhouse interior. Paints in neutral or natural colors such as light brown, green, or gray work well. Raw linseed oil also provides protection to the wood. After finishing the box, let it weather outside for a month. This allows time for the paint vapors to dissipate.

For more information on birds and birdwatching, order a copy of *Birdwatcher's Digest* for $3.50. A one-year subscription (6 issues) costs $15. *Birdwatcher's Digest*, P.O. Box 110, Marietta, OH 45750.

KEEP A TIDY HOUSE

Cleaning a birdhouse rates as the most important thing you can do once you've hung the box. Check the box each spring, before the nesting season, to clear out mouse nests or debris left from winter occupants. Clean the box after each nesting season. Left to build up, the top of a nest can come too close to the entrance hole, allowing predators to reach in and steal eggs or

Illustration:
Jim Stevenson

the young. Cleaning the box also keeps parasites to a minimum. If the box becomes infested with insects, dust it with a pyrethrum or rotenone pesticide in the fall; never dust when the house is inhabited.

GIVE 'EM SOME AIR

Although wood has excellent insulating properties, birdhouse interiors can overheat. Drill ventilation holes near the roof, two per side, except for the back. Drill ¼" holes for small boxes and ½" holes for larger ones. Drill the holes near the roof and angle them slightly upward into the box to prevent rain from blowing in.

KEEP 'EM DRY

Drainage holes allow water condensation and rain seepage to escape through the bottom of the nesting box. To create drainage, position the nesting box side pieces slightly higher than the bottom piece to create two narrow gaps. Or, drill four or five ¼" holes in the box bottom. Each time you clean the box, clear all vent and drain holes of debris.

PLAYING MOTHER

Children don't like mothering, but birds—especially bluebirds—don't mind the fuss. The most important reason to monitor a birdhouse is to rid it of house sparrows. Although persistent, sparrows eventually will abandon a nesting box if you repeatedly remove their nests.

Continued on page 80

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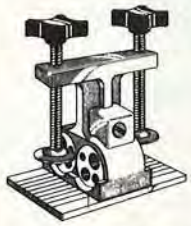

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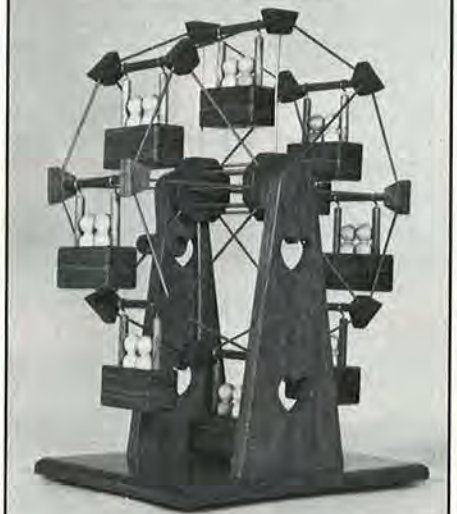

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Designing, Building, and Hanging Birdhouses

Continued from page 79

Interior Floor Size	Diam. of Entrance Hole	Center of Entrance Hole to Floor	Depth of Cavity	Height of Box Placement
BLUEBIRDS (Eastern and Western)				
5×5"	1½"	7"	8-9"	5-15'
CHICKADEE (black-capped, Carolina, Boreal, and chestnut-backed)				
4×4"	1⅛"	6-8"	8-10"	8-15'
FINCH (house)				
6×6"	2"	4"	6"	8-12'
FLYCATCHERS (great crested, olivacous, Western, and ash-throated)				
6x6"	2"	7-8"	8-10"	8-20'
NUTHATCHES (red- and white-breasted)				
4x4"	1¼"	6"	8"	12'
OWL (barn)				
10x18"	6"	7"	15-18"	12-18'
OWL (screech)				
8x10"	3¼"	12"	16-18"	12-30'
OWL (barred)				
13×15"	8"	9-12"	16"	10-30'
OWL (saw-whet)				
7×7"	2½"	12"	12-15"	15-20'
ROBIN (American)				
7×7"	open on three sides		8"	6'
SWALLOWS (barn)				
6×6"	open on three sides		6"	8-12'
SWALLOWS (purple martin)				
6×6"	2½"	2½"	6"	15-20'
TITMICE (plain, tufted, and bridled)				
4×4"	1¼"	6"	6-8"	6-15'
WARBLER				
5×5"	1⅛-1½"	6-8"	8-10"	4-6'
WOODPECKER (downy)				
4x4"	1¼"	6-8"	8-10"	12-15'
WOODPECKER (flicker)				
7x7"	2½"	14-16"	16-18"	6-20'
WOODPECKER (gold-fronted and hairy)				
6×6"	1¾-2"	9-12"	13-15"	8-20'
WOODPECKER (red-headed and red-bellied)				
6×6"	2"	9-12"	12-15"	12-20'
WRENS (Bewicks and house)				
4×4"	1⅛"	5½"	7-8"	6-10'
WRENS (brown-throated)				
4×4"	1"	3½-6"	6-8"	6-10'

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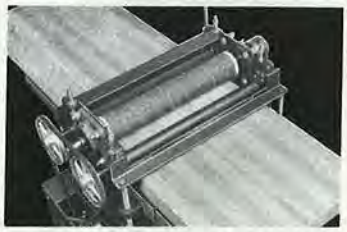
✓ **Change to Molding or Sanding in just minutes!** Unique "Morse-Taper" Quick Change Cutterhead guarantees fast change-over . . . bearings remain factory set . . . precisely aligned at all times.

Woodmaster's Quick-Change Molding Head lets you create custom moldings from any stock. Choose from over 250 standard trim and picture frame patterns... or design your own!



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Editor, Workbench Magazine

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DML CLAIMS CARBIDE BREAKTHROUGH

Long-lasting performance has always been the benchmark that sets carbide-tipped saw blades apart from other blades. Now, DML, a subsidiary of Vermont American, has developed a new carbide—dubbed Dyanite—that they claim outlasts any existing carbide.

DML tested the blades in three different case studies and found that Dyanite blades last twice as long as standard carbide blades in particleboard, 20 to 30 percent longer in hardwoods, and 11 times longer in green hardwoods. Why? DML says Dyanite better resists high temperatures and the corrosive acids found naturally in wood.

At *WOOD®* magazine we don't have laboratory conditions to test durability, but to test the blades for quality of cut, we took three blades—24-tooth rip, 40-tooth combination, and 60-tooth cutoff—into our shop for a tryout. I found that all three blades produced cuts comparable to other high-quality carbide-tipped blades. Of the three I tested, the combination blade was surprisingly the most impressive. It produced smoother crosscuts than the cutoff blade, and made less-labored rip cuts than the ripping blade. If you want to pick up one of these wood gobblers, the combination blade should be at the top of your list.

—Tested by Jim Downing, *WOOD* magazine's design editor

DML Golden Eagle Dyanite saw blades; the 40-tooth combination blade has a suggested retail price of $72. Call 800-233-7297 for the dealer nearest you.

Continued on page 84

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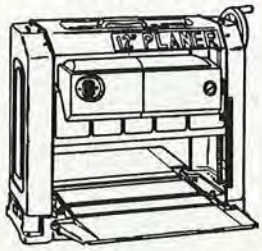
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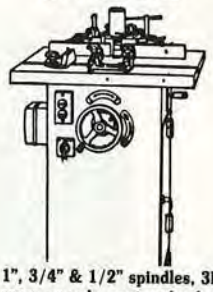
1", 3/4" & 1/2" spindles, 3HP, 2 rever. speeds, router chuck, 20"x20" table, 2.5" travel, 350 lbs.
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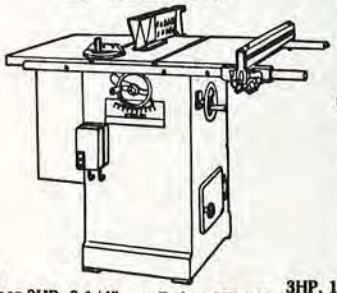
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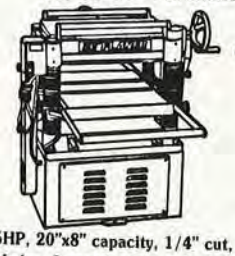
5HP, 20"x8" capacity, 1/4" cut, 4 blades, 2 speeds, auto 2 feeders, 980 lbs.
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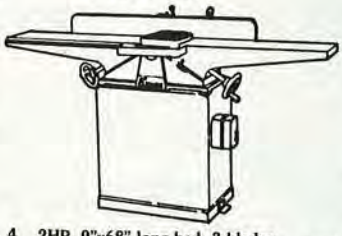
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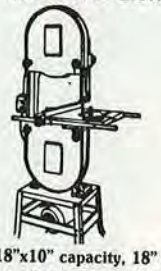
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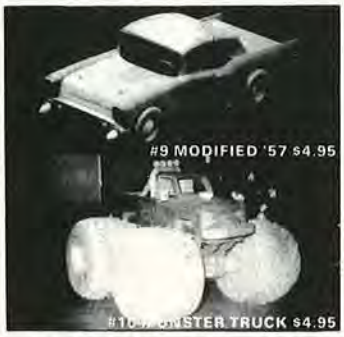

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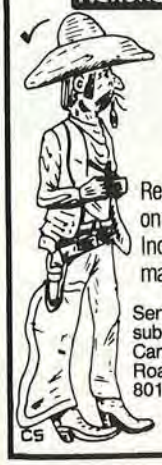

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Continued from page 83

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—Steve Oswalt

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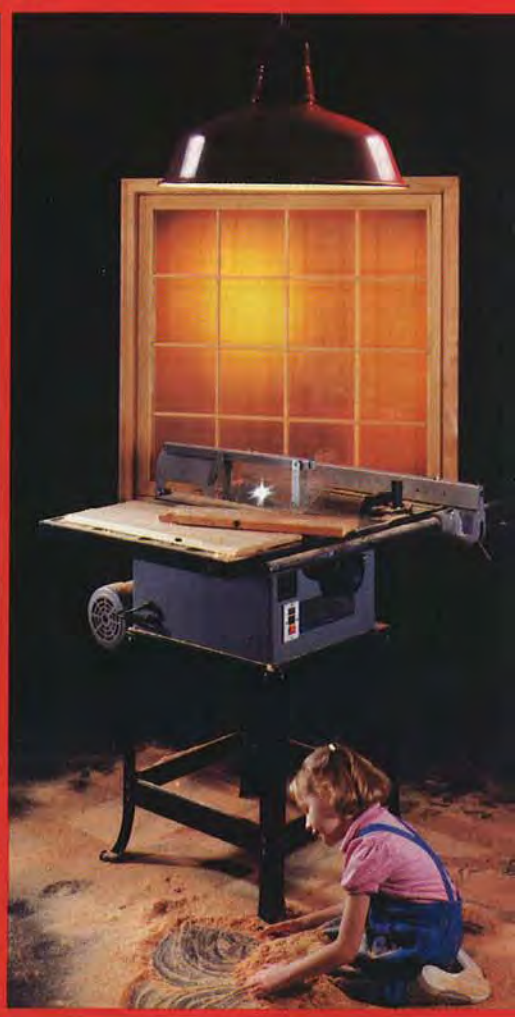

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The 10" Tablesaw features a 1 1/2 HP motor with a 27" × 40" working surface, and a tilting blade with a full cutting depth of 3 1/8".

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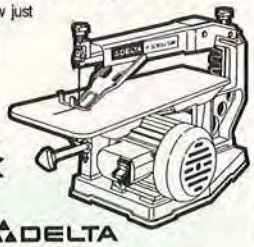

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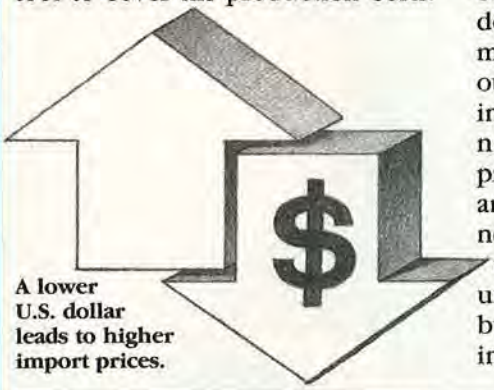
The U.S. dollar has dropped against most major world currencies in the past couple of years, making most foreign goods sold in the U.S. more expensive. Here's why. If a tool costs a Japanese manufacturer a set number of yen to produce, and those yen now equal more U.S. dollars, that manufacturer has to charge more U.S. dollars for that tool to cover his production costs.



A lower U.S. dollar leads to higher import prices.

Between February 1985, and September 1988, the yen jumped 49 percent in value against the dollar, and the German deutsch mark gained 47 percent. "There's no way you can pass along those kinds of increases," one manufacturer told us. So how do these toolmakers cope? "All we can do is cut our overhead and wait for the dollar to come back up," the same manufacturer told us. "We've raised our prices modestly, while absorbing 75 percent of the decline in our normal profits. The cost of the product to us has nearly doubled, and we haven't raised our prices nearly that much." Fortunately for these importers and foreign manufacturers, the dollar has slowly, but gradually, risen since bottoming out in early 1988.

BOSCH RIDS TOOLS OF CHAMELEON

If you've noticed that some of your Bosch power tools have changed colors, or if you've purchased one of their tools lately and it doesn't match the color of a model you purchased a few years ago, don't worry. The color shift affects your tool only cosmetically.

There's a reason. About two years ago, in response to environmental concerns, the Robert Bosch Power Tool Corp. removed cadmium (a suspected carcinogen) from the plastic in the body of its tools. Although the material does not pose a threat to you while embedded in the plastic, the long-term effects of disposing of any form of cadmium concerns environmentalists.

After removing the chemical element, a funny thing happened. Because cadmium acts as a color-stabilizer in plastics, the new tools shifted from the familiar "Bosch blue" to green in color. Bosch corrected the problem recently by switching to a more fade-resistant dark-blue color.

SHOPSMITH ON RETAIL EXPANSION TRACK

Long known as the maker of the Mark V multipurpose woodworking machine, Shopsmith wants to be known for much more. The Dayton, Ohio, company has tremendously increased its product line in the past few years, and now aims to greatly expand its number of retail outlets across the country.

"We'll have whatever the woodworker needs—we're not just the Mark V company anymore," said Tim Silvers of Shopsmith. And to serve more of those woodworkers, Shopsmith boosted its number of stores from 24 to 40 in the past year. "With 40 stores, we'll have a store within 50 miles of 80 percent of the U.S. population," said Shopsmith's Scott Phillips. "And we plan to expand to 70 stores in the next three years."

However, the company is not content to let its "total source" concept stop at products and stores. "Through our in-store classes, we also want to be a leading educational force," Phillips said.

Illustration by Jim Stevenson

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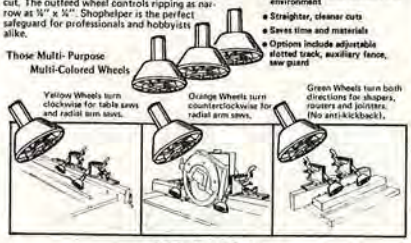

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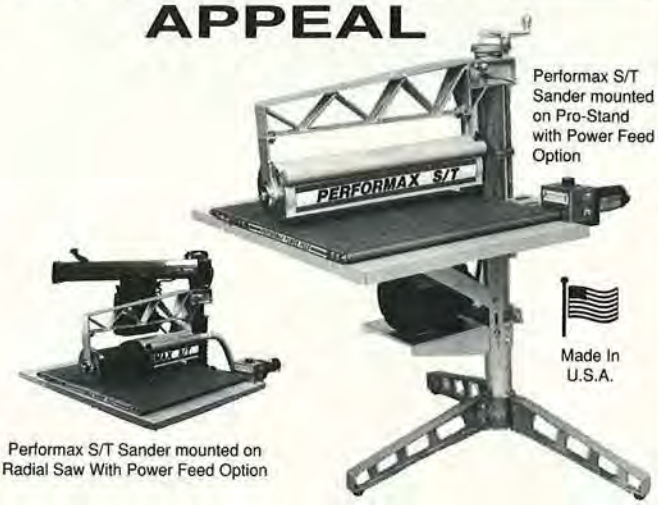

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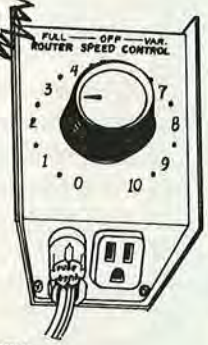

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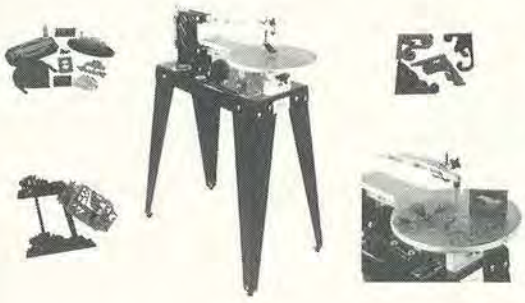

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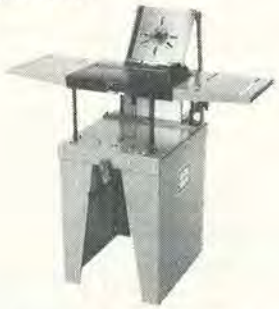

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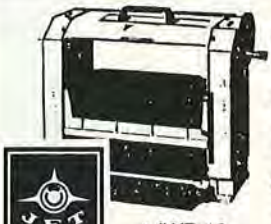

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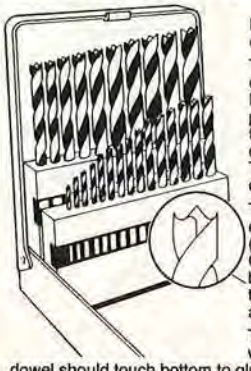

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WOODWORKER'S PLANS & PARTS

HEIRLOOM ROCKER

Build our classic rocking horse and create a family heirloom which will delight the children in your family for generations to come.

This great rocker retails for over $300.00

Accessories available See our catalog

Size: 35" x 58"

Order Plan 400 Only $10.25

DOOR HARP PLANS AND PARTS

Goose

Same Day Service

Duck

Harp Plans $4.00 each or buy all four $12.50

Plans include stencil design

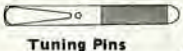
New design No fret bar

Pig

Clown

Hardware Kit (no plywood) One harp 3.50 Four harps 12.50

Harp Wire 10¢ per ft. 25' for 2.50 ¼ lb. for 12.00 1 lb. 34.00



Tuning Pins 30¢ each 50 for 11.00 100 for 18.00 500 for 75.00

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Door Harp Plywood 11½" x 11½" 1.00 ea. 10 for 9.00 30 for 24.00

Low, low prices on wood parts

Smooth Maple Wood Wheels Eight Sizes

WT-3/4"	$4.50/100
WT-1"	$5.00/100
WT-1-1/4"	$7.00/100
WT-1-1/2"	$10.00/100
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WT-2-1/4"	$5.00/20
WT-2-1/2"	$7.00/20

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AP-1 fits 1" to 2"
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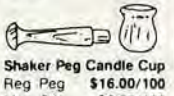

Reg Peg	$16.00/100
Mini-Peg	$6.00/100
Candle Cup	$16.00/100
Mini-Cup	$7.00/100

Tie Peg $6.00/100

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MISCELLANEOUS

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WOODWORKING ASSOCIATION OF NORTH AMERICA — First international association for woodworkers. Benefits include our quarterly magazine *International Woodworking*, specials from selected manufacturers, group health and life insurance, access to the woodworking network. WOODWORKING ASSOC. OF NORTH AMERICA. 50¢. *Circle No. 2092.*

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DECOY AND WOOD CARVERS WISHBOOK—48-page catalog features wide selection of tools and supplies for decoy carvers, wood carvers, wood turners. Chisels, gouges, sharpening stones, precision grinding tools, Foredom tools, Fire Brush burners, pneumatic sanders, glass eyes, pewter feet, patterns, paints, reference books. P. C. ENGLISH, INC. Free. *Circle No. 2115.*

WOODCARVING TOOLS — Whittlers and carvers — Warren Tool Co. offers a catalog for you full of whittling and carving hand/power tools, books, stones, wood, and supplies. Since 1927, the finest in woodcarvers tools. WARREN TOOL CO., INC. $1.00. *Circle No. 2185.*

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MERLE ADJUSTABLE CORNER CLAMP — Quick & easy to use. Fully adjustable from 2⅝" to 69x69 in. Perfect for clamping picture frames, cabinets, or anything that requires 90° corner clamping. The Merle Clamp is cast aluminum & steel construction, a true industrial quality tool. Send today for information. MLCS LTD. Free. *Circle No. 2250.*

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BUILD HEIRLOOM CLOCKS — Now create beautiful heirloom quality clocks right in your own home. Choose from magnificent chiming grandfather clocks to charming wall clocks. 32-page catalog also offers a selection of music boxes, music movements, traditional barometers, and a huge variety of quartz movements and dials for custom clock building. Satisfaction guaranteed. CRAFT PRODUCTS CO. Free. *Circle No. 2320.*

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TOP OFF—your remodeling project with a good-looking, functional Armstrong tile ceiling or suspended ceiling. You can choose from a wide variety of patterns, from plain white to decorative to warm "wood" grain. Want peace and quiet? Select an acoustical ceiling. It absorbs a minimum of 45% of the noise striking its surface. Send for color brochure that tells you all you need to know. ARMSTRONG. Free. *Circle No. 2710.*

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Model		List	Sale
23-700	Wet/dry grinder	201	135
23-680	6" bench grinder ¼ H.P.	81	52
23-880	8" bench grinder ½ H.P.	135	99
23-980	10" bench grinder 1 H.P.	245	199
11-950	8" drill press	164	119
14-040	14" drill press	313	240
40-150	15" hobby scroll saw	178	125
28-160	10" hobby band saw	189	129
31-050	1" belt sander 2.0 amp	93	69
31-460	4" belt/6" disc sander	178	125

DELTA STATIONARY

34-761	10" unisaw 1½ H.P.	1579	1179
22-651	13" planer 2 H.P.	1586	979
34-429	10" tilting arbor bench saw 1½ H.P.	1479	999
28-243F	14" band saw w/stand, no motor	621	419
33-990	10" radial arm saw	727	539
11-072	32" radial drill press	487	360
37-280	6" motorized jointer	440	319
37-195	¾ H.P. 2 stage dust collector	435	339
37-154	Deluxe DJ-15 6" jointer w/½ H.P. motor	1288	979

BRAND NEW BY DELTA:
33-050 8¼" Sawbuck
List Price 742 Special Sale 539!!

34-330 8¼" Table Saw 13 Amp
List Price 321 Special Sale 225!!

MILWAUKEE TOOLS

PRICE BUSTERS		List	Sale
0224-1	⅜" drill 4.5A magnum	179	110
0234-1	½" drill 4.5A mag 0-850 rpm	189	105
0244-1	½" drill 4.5A mag 0-600 rpm	189	105
0222-1	⅜" drill 3.5A 0-1000 rpm	169	95
0228-1	⅜" drill 3.5A 0-1000 rpm	154	88
0375-1	⅜" close quarter drill	208	115
0379-1	½" close quarter drill	243	139
0212-1	½" cordless drill w/spd.	263	149
6539-1	Cdlss screwdriver 190 rpm	108	62
6540-1	Cdlss screwdriver w/bits & case	137	89
6545-1	Cdlss screwdriver 200 & 400 rpm	120	72
3102-1	Plmbrs rt angle drill kit	295	175
3002-1	Electricians rt angle drill	290	179
5399	½" D-hdle ham drill kit	299	169
1676-1	H.D. Hole Hawg w/cs	395	235
6511	2 sp SawZall w/cs	209	119
6405	8¼" circle saw	209	120
6750-1	Drywall gun 0-4000 4.5A	149	89
6798-1	Tek screwdriver	173	105
6226	2 sp bandsaw w/case	416	240
6234	TSC bandsaw w/case	427	279
6507	TSC SawZall w/case	219	129
6179	14" chop saw	430	295
6012	Orbital sander 3⅝"x7⅜"	179	100
6014	Orbital sander 4½"x9¼"	189	110
6305	6¼" cordless circle saw	284	155
6753-1	Drywall gun 0-4000 3.5A	129	77
6977	Var. temp heat gun	109	70
0214-1	⅜" v. spd. cordless drill	220	125
5397-1	¾" v. spd. hammer drill kit	227	139
5371-1	½" v. spd. hammer drill kit	313	199
3107-1	½" v. spd. rt angle drill kit	305	180
6754-1	Drywall gun 0-4000 4.5A	179	115
6232	4¾" bandsaw w/case	432	275
6747-1	Drywall driver-0-2500	149	87
0230-1	⅜" drill 0-1700 rpm	169	99
3300-1	½" v spd magnum rt angle kit	289	179
5620	Router 1 H.P.—8 amp	289	169
5650	Router 1½ H.P.—10 amp	299	180
5680	Router 2 H.P.—12 amp	350	205
5455	⅔" polisher 1750 rpm	199	125
5535	7" polisher 2800 rmp	209	129
6215	16" chain saw	280	189
8975	Heat gun	85	55
6356	7¼" circular saw	198	112
6368	7¼" circular saw w/case	226	125
0216-1	2 spd cordless drill Hi-torque	222	134
0235-1	½" drill keyless chuck mag	199	123
6016	¼ sheet pad sander	75	44
6145	4½" grinder 10,000 rpm	149	95
8950	8 gal wet/dry vac	205	139
8955	10 gal wet/dry vac	279	189
0239-1	½" drill keyless chuck	189	114
6749-1	Drywall gun 0-2500 4.5A	189	117
6377	7¼" worm drive saw	275	155

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⅝" Bore—Industrial Grade
CARBIDE TIPPED SAW BLADES

Item No.	Description	Diam.	Teeth	List	Sale
LU72M010	Gen. Purp. ATB	10"	40	77.49	34
LU81M010	Gen. Purp. TiCh	10"	40	79.32	39
LU82M010	Cut-off	10"	60	58.89	42
LU84M011	Combination	10"	50	85.25	35
LU85M010	Super Cut-off	10"	80	126.90	59
LM72M010	Ripping	10"	24	74.22	36
LU73M010	Cut off	10"	60	91.16	37
LU87M010	Thin kerf	10"	24	56.90	36
LU88M010	Thin kerf	10"	60	69.90	43
PS203	Gen'l Purp	7¼"	24	31.42	16
PS303	Plywood	7¼"	40	37.76	22
DS305	6" Dado - Carbide			158.13	95
DS308	8" Dado - Carbide			205.69	108
F9	1¼"x¼" Biscuits 1000 Qty				25
F10	2"x⅞" Biscuits 1000 Qty				25
F20	2¼"x1" Biscuits 1000 Qty				25
FA	Assorts Biscuits 1000 Qty				28
WC104	4 pce. chisel set w/case ¼"-1"			39	27
WC106	6 pce. chisel set w/case ¼"-1"			52	36
WC110	10 pce. chisel set w/case ¼"-1½"			88	59
FB100	16 pce forstner bit set ¼"-2¼"			262	152
94-100	5 pce router bit door system			260	159
JS100	Biscuit Jointer			265	154

MAKITA CORDLESS

Model		List	Sale
6070DW	⅜" var. spd. rev. 7.2v	123	65
6071DWK	⅜" var. spd. rev. w/removable batt. 7.2v	190	105
5090DW	3⅜" saw kit, 9.6v	243	125
5600DW	6¼" circular saw, 10.8v	317	157
6010DWK	⅜" cordless drill kit, 7.2v	155	89
6010SDW	⅜" cordless drill, 7.2v	103	58
DA3000DW	⅜" angle drill, 7.2v	238	130
4390DW	9.6 volt cdls. recip saw kit	218	122
6010DL	⅜" drill w/flashlight, 7.2v	198	113
6012HDW	2 spd. driver drill w/clutch & case*, 9.6v	224	110
6710DW	Cordless screwdvr kit, 7.2v	186	103
6092DW	Vlspd. drill, kit complete	237	115
6093DW	Vlspd. drill w/clutch—complete	248	119
6891DW	Drywall gun 0-1400, 9.6v	225	119
DK1001	6010 DWK drill kit comp. & 4071D vac. cleaner	178	115
632007-4	9.6 volt battery	49	29
632002-4	7.2 volt battery	42	27
5097NBA	7¼" saw w/elec. brake	228	125
5008NBA	8¼" saw w/elec. brake	275	145
B04510	Sander	80	46
9900B	3"x21" belt sander w/bag	254	139
9924DB	3"x24" belt sander w/bag	268	139
9035	⅓ sheet finish sander	106	58
9045B	½ sheet finish sander	216	116
9045N	¼ sht fin. sand. w/bag	219	117
4200N	4⅜" circ. saw 7.5 amp	213	111
5201NA	10¼" circ. saw 12 amp	560	298
4301BV	Orb. vlsp jig saw 3.5 amp	274	145
JR3000WL	2 sp recip saw w/case	220	122
JR3000V	Vs. recip saw w/case	224	125
LS1020	New 10" mitre saw	440	229
9820-2	Blade sharpener	354	199
410	Dust collection unit	480	269
3705	Offset trimmer	255	129
1900BW	3¼" planer w/case	198	115
1100	3¼" planer w/case	381	185
9207SPC	7" sander-polisher	262	139
3601B	1⅜ H.P. router	242	125
3700B	½ H.P. trimmer	180	92
9501B	4" grinder	137	65
B04530	6" round sander	95	57
B04550	¼" sheet pad sander w/bag	85	46
DA3000R	⅜" angle drill	256	130
DP4700	½" vlsp w/rev. 4.8 amp	198	109
6300LR	½" angle drill w/rev.	325	175
2706W	8¼" table saw	474	245
2711	10" table saw w/brake	800	460
GV5000	Disc sander 5"	109	59
6800DB	2500 rpm 3.5 amp	140	79
6800DBV	0-2500 rpm 3.5 amp	154	89
6801DB	4000 rpm 3.5 amp	140	80
6801DBV	0-4000 rpm 3.5 amp	154	89
2030N	12" planer/jointer	2970	1575
2040	15⅝" planer	2470	1375
1805B	6½" planer kit w/case	546	339
JV1600	var. speed jig saw	220	119
JV2000	var. speed orb. jig saw	242	127
5005BA	5½" circular saw	211	115
9503BH	4½" sander-grinder	153	79
6404	⅜" drill 0-2100 rpm, 2 amp.	102	55
6510LVR	⅜" drill rev. 0-1050 rpm	137	72
6013BR	½" drill rev. 6 amp	240	125
5402A	16" circular saw - 12 amp	605	325
3612BR	3 H.P. plunge router	376	185
9401	4"x24" belt sander w/bag	302	162
3620	1¼ H.P. plunge router w/case	182	97
4302C	Vlspd. orb. jig saw	287	145
5077B	7¼" Hypoid saw	248	139
LS1430	14" Mitre saw	624	419
2414	14" cut-off saw AC/DC	350	195
5007NB	7¼" circ saw 13 amp	209	110
3612B	3 HP plunge router sq/b	376	185

SKIL SIZZLERS

Model		List	Sale
5510	(551) 5½" circ saw	112	92
5625	(552) 6½" circ saw	175	110
5656	(553) 7¼" circ saw	132	103
5665	(554) 8¼" circ saw	204	118
5750	(807) 7¼" circ - drop tool	198	115
5765	(808) 8¼" circ - drop foot	216	130
5790	(810) 10¼" circ - drop foot	400	229
5825	(367) 6½" worm saw	229	139
5865	(825) 8¼" worm saw	250	149
4580	Vari - orbit jig saw w/case	144	82
3810	10" Mitre saw	263	189
595	3"x21" sander w/bag 5.5A	197	125
7565	¼" palm sander	52	34
7313	3x18 belt sander 4.5A	72	58
77	7¼" worm drive	230	132
5350	2½ HP circ. saw	80.99	69
5250	2¼ HP circ. saw	58.99	49

XTRA SPECIAL BY SKIL

2735-04	12v V.Spd. Cordless Drill comp. w/case & 2 Batt.	210	118

LEIGH DOVETAIL JIGS

D1258-12—List 314.00—Sale 245.00
D1258-24—List 375.00—Sale 279.00

HITACHI TOOLS

Model		List	Sale
TR6	Trimmer	177	95
TR8	Plunge router, 1½ H.P.	219	119
TR12	Plunge router, 3 H.P.	354	169
C10FA	10" dlxe. mitre saw	490	265
C8FB	8½" slide compound saw	859	475
C15FB	15" mitre saw	745	389
FREUD LU85M015	- 15" Carb. Bld. 108 Tooth	181	115

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PIRANHA By Black & Decker
CARBIDE TOOTH SAW BLADE

Model#	Diameter	#Teeth	List	Sale
73-756	6-1/2	36	28.96	16.30
73-717	7-1/4	18	13.14	7.10
73-737	7-1/4	24	16.36	9.00
73-757	7-1/4	40	29.72	16.35
73-758	8	40	42.04	24.15
73-759	8-1/4	40	42.86	24.60
73-739	9	30	31.48	17.85
73-769	9	60	66.58	38.95
73-740	10	32	32.98	14.00
73-770	10	60	67.02	25.00
73-715	5-1/2	16	13.00	7.30

STYLE 32 PONY SPRING CLAMPS
with coated tips and handles

Model	Size	List	Sale Ea.	Lots of 25
3201-HT	1"	1.89	1.10	24.75
3202-HT	2"	2.78	1.65	37.15
3203-HT	3"	5.22	3.00	67.50
3204-HT	4"	9.48	5.15	115.85

ADJUSTABLE HANDSCREWS BY JORGENSEN

Item No.	Jaw Length	Open Cap	List	Sale	Box of 6
#5/0	4"	2"	12.88	7.25	40.50
#4/0	5"	2½"	13.83	7.95	45.30
#3/0	6"	3"	14.83	8.35	47.60
#2/0	7"	3½"	15.94	8.95	51.00
#0	8"	4½"	17.74	9.95	56.70
#1	10"	6"	20.29	11.40	64.95
#2	12"	8½"	23.29	13.00	74.00
#3	14"	10"	29.53	17.50	99.95
#4	16"	12"	38.38	23.00	139.95

STYLE 37 2½" Throat ¼"x¾" JORGENSEN

Item No.	Jaw Length	List	Sale	Box of 6
3706	6"	8.86	5.50	29.70
3712	12"	9.81	5.95	32.50
3718	18"	10.83	6.85	37.50
3724	24"	11.83	7.35	40.00
3730	30"	13.19	8.25	45.00
3736	36"	14.43	8.95	49.00

PONY CLAMP FIXTURES

Model		List	Sale	Lots of 12
50	¾" black pipe clamps	12.48	7.50	80
52	½" black pipe clamps	10.41	6.00	65

STYLE J. ADJUSTABLE HANDSCREW KITS

Model	Length Jaws	List	Sale
J04	4	7.10	3.75
J06	6	8.13	4.25
J08	8	9.12	4.80
J10	10	10.66	5.75
J12	12	13.21	6.90

BOSCH

Model		List	Sale
1581VS	Top hdle. jig saw	235	129
1582VS	Barrell-grip jig saw	220	119
	Bosch metal case for above jig saws	34	26
	Bosch blade assortment for jig saws 30 of Bosch's best selling blades	23.99	
1942	Heat gun 650°-900°	99	69
1272D	3"x24" B.S. w/bag	299	172
1273D	4"x24" B.S. w/bag	315	179
11-212	Bulldog ¾" SDS rotary	339	189
1196VSRK	⅜" vs hammer drill	215	110
1198VSR	½" vs hammer drill	229	125
1608	5.6 amp lam trimmer	140	77
1608L	Same as above w/trimguide	145	84
1608T	5.6 amp tilt base trim	159	91
1609	5.6 amp offset base trim	205	122
1609K	Lam installers kit w/1609	295	165

Offset base, trimmer tilt base, trimguide, ¼" collet, collet nut, wrenches, hex keys and case

1601	1 H.P. Router 25,500 rpm	165	98
1602	1½ H.P. Router 25,000 rpm	199	110
1603	1½ H.P.D handle Router	223	120

The famous Bosch 1604 1¾ h.p. Router
List $219 Super Spec. $117

1606	1¾ H.P.D hdle. Router	243	135
3258	3½" planer w/blade guard	210	121
3258K	3258 planer w/case	235	139
3270D	3"x21" belt sander w/bag 5A	225	131
1273DVS	Var spd. 4"x24" 6 speed range sander 10.5 amp	339	189
1611	3 H.P. plunge router	349	202
1651	7¼ circ. saw drop foot	179	99
1654	7¼ circ. saw pivot base	179	99
1922K	Cdlss. jig saw w/case.	239	169
921VSRK	⅜" cdlss. drill w/spd. w/clutch and case	235	137
1632VSRK	Recip. saw 8.4A orb. w/spd.	225	129

SENCO AIR NAILERS

SFN1	Finishing nailer 1" - 1¾"	349	265
SFN2	Finishing nailer 1½" - 2½"	529	395
SN2	General purpose 1⅛" - 2⅜"	525	415
M2	General purpose 1⅜" - 2"	440	345
SN4	General purpose 2" - 3"	635	475
LS2	Pinner ⅜" - 1"	325	258
SKS	Stapler	325	257

WORKMATES By Black & Decker

Model		List	Sale
79-029	#85, 18#	63.00	39.00
79-032	#200, 23#	103.00	65.00
79-033	#300, 28#	117.00	70.00
79-034	#400, 35#	152.00	98.00

Black & Decker Deals

1707	8½" crosscut mitre saw	813	469
2037	0-4000 5 amp drywall gun	160	92
1703	10" mitre saw w/73-770 blade	313	169
2650	0-4000 4.5 amp drywall gun	138	87
4015	½ sheet sander 3 amp	190	109
2600	⅜" 0-1200 4.5 amp drill	125	75
4018	½ sheet sander 2.3 amp	122	76
3051	7¼" worm drive 13 amp	246	142
3027-09	7¼ circ. saw 10.5 amp	170	75
3103	2 spd recip w/case	193	95
3028	7¼" circ w/18 tooth carb bld	130	75
3047-09	7¼" super saw cat w/brake	282	164
3048-09	8¼" super saw cat w/brake	297	174
3157	Orb vlspd. jig saw	202	125
3153	Vlspd. jig saw	195	121

RYOBI SPECIALS

Model		List	Sale
JP155	"NEW" portable 6" jointer/planer	545	335
R500	2¼ H.P. plunge router	326	159
TS251IU	10" mitre saw	392	169
TS251IUS	10" mitre w/acc. kit & 60 tooth carbide blade	435	199
AP10	10" surface planer 13 amp	820	358
TS380	14" mitre saw	773	339
W540	7¼" AC/DC dbl insul	210	99
R150K	1 H.P. plunge router w/case	205	95
E3810	0-2500 3.7A drywall gun	143	69
RJ102K	2 sp. 6A recip saw w/case	218	89
W740C	8¼" AC/DC dbl insul circ saw	234	115
BE321	3"x21" vlspd. belt sdr.	259	119

PORTER CABLE

Model		List	Sale
630	1 H.P. router 6.8 amp	170	110
690	1½ H.P. router 8 amp	215	115
691	1½ H.P. router D hdle	235	129
536	1½ H.P. speedmatic router	310	195
518	3 H.P. 5 speed router	560	319
520	3 H.P. 15 amp router	510	298
309	3.8 amp lam trimmer	135	85
310	3.8 amp H.D. lam trimmer	190	114
312	Offset base lam trimmer	215	119
319	Tilt base lam trimmer	221	129
695	1½ H.P. router/shaper	299	190
696	H.D. shaper table	165	105
351	3"x21" belt sander w/o bag	215	119
352	3"x21" belt sander w/bag	225	122
360	3"x24" belt sander w/bag	310	175
361	3"x24" belt sander w/o bag	290	170
362	4"x24" belt sander w/bag	325	185
363	4"x24" belt sander w/o bag	310	180
7556	½" right angle drill	295	175
315-1	7¼" top hdle 13 amp circ saw	195	105
9315-1	315-1 comp w/case & carb bld	225	125
617	7¼" pushhandle 13 amp	195	105
9617	617 comp w/case & carb bld	225	125
368-1	8¼" top handle 13 amp	205	129
314	4½" trim saw 4.5 amp	205	125
548	X HD bayonet saw	255	165
9548	X HD bayonet saw w/case	275	175
9629	Recip saw w/sp 8 amp	230	130
9627	Recip saw 2 speed 8 amp	220	125
666	¾" H.D. vsp drill - Hdl	185	122
621	⅜" H.D. v spd. 0-1000 rpm	155	90
320	Abrasive plane 3 amp	150	98
126	Porta plane 7 amp	290	164
9118	Porta plane 7 amp kit	325	185
9652	Versa plane 10 amp kit	430	275
7545	0-2500 v spd. drywall gun 5.2 amp	169	100
7540	0-4000 5.2 amp gun	155	99
505	½ sheet pad sander	195	100
7511	⅜" v spd. drill 5.2 amp	185	105
7514	½" v spd. drill 0-750	195	114
303	Paint remover	230	150
304	7" disc sander 4000 rpm	195	125
305	7" disc polisher 2000 rpm	195	125
367	3¼" planer 6.5 amp	225	148
537	1½ H.P. D hdle router	325	205
7548	Top hdl jig saw 4.8 amp	215	119
7648	Barrel grip jig saw 4.8 amp	210	119
330	Speed block sander ¼ sht	97	54
555	Plate biscuit jointer 5A w/case	280	159
345	6" saw boss 9 amp	160	95
5060	"Stair Ease" stair templet	194	125
5061	"Stair Ease" hard wood stair templet	204	135
659	0-4000 drywall gun 4 amp	130	74
100	⅛ H.P. router	160	94
59381	Door hanging kit	229	152
399	Drywall cutout unit	110	69
43218	Drywall cutout unit bit	6.75	5.50
5008	Dovetail template kit	99.50	69
5009	Mortise & Tenon jig	54.95	38
5002	"NEW" stub-nte plastic pipe cutter	99.95	75
308	"NEW" laminate slitter	189	135
5116	"NEW" omni-jig	395	269

—BRAND NEW—
By Porter Cable

Model		List	Sale
9647	TIGER CUB recipro saw	185	115
9850	12 volt cordless driver/drill. comp w/charger-ball case	210	129
8500	Extra 12v battery	48	33

FREE FREIGHT TO THE 48 CONTINENTAL STATES ON EVERY ITEM.

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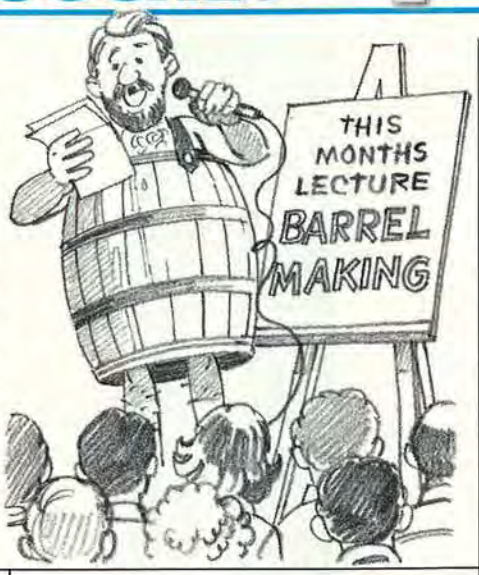
WILLING TO TALK

Looking for an informative someone to address your woodworking group? Contact the Early American Industries Association. The national organization's newly formed speakers' bureau lists members who cover topics such as colonial clockmaking, 18th-century cabinetmaking, and cooperage. So far, most of the speakers live in the New England area.

To inquire about a speaker, or to add your name to the speakers' list, contact Ruth Hyde, R.D. 1, Box 45, Golts, MD 21637.

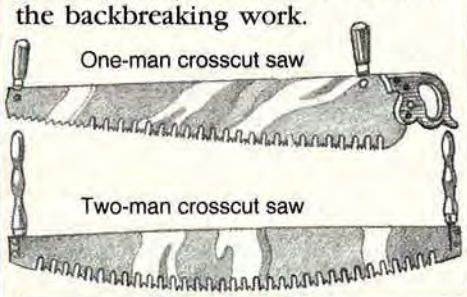


AN IDEA TO STICK WITH

As you lie awake at night, trying to come up with a woodworking project so clever and innovative that no one has ever thought of it before, keep this in mind: At last count, the British Stickmakers Guild had 1,000 members. That's 1,000 craftsmen who believe that a simple, traditional walking stick is still worth making, and still worth making well.

OH, BACK PAIN!

Before chainsaws, loggers felled trees and bucked (crosscut) the trunks with a handsaw they referred to as a "misery whip." Apparently, they weren't too fond of the backbreaking work.



HIRING FUNGI

Everyone's discovering spalted wood! Thirteen corporations, including giants such as Boise Cascade, Procter & Gamble, and Weyerhaeuser, want to put lowly, decay-causing fungi to work. Calling themselves the Biopulping Consortium, the companies support research using fungi to turn wood chips into paper pulp. Studies suggest a 25 percent energy savings over the present "cooking" method from pretreating the wood with fungi to break down wood fibers.

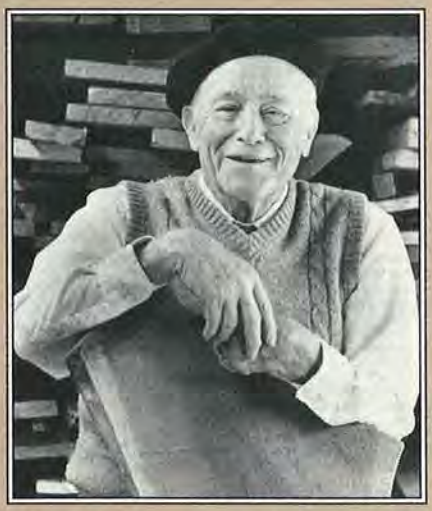
OUT OF AFRICA

Carlton McLendon brings home more than a T-shirt when he travels. For instance, his memento from a trip to Africa was something that's sacred in its homeland and awfully valuable everywhere else—pink ivory wood.

Not only are there very few pink ivory trees (no more than 50, it's estimated), but only Zulu chiefs may possess the wood. Under tribal law, anyone else with it could draw the death penalty.

"My wood came from a friend who got it in return for a political favor from a member of South African parliament," relates Carlton, a garrulous 76-year-old who ran a furniture plant for 40 years and now sells lumber in Atlanta as Carlton McLendon, Inc. To return the favor, Carlton sent some handcrafted American knives to the South African politician, the South African Minister of Forestry, and to the Zulu chief in the Transvaal region where the wood came from. "The chief—known as professor by his tribe because he has a Ph.D. from Oxford—got the fanciest. It was an oversized bowie with his name engraved on the blade," he says.

Carlton had his two pink ivory logs (one 16" in diameter, the other 12"), sawed into slabs and sells the wood for $40 a pound. "One woodturner bought a 1'-long length for $1,000," he notes. "I haven't used any, myself."



"Most pink ivory goes for knife handles, at $25 for a 1½×4½×1" piece," says Atlanta wood dealer McLendon, above, posing by his valuable wood.

Photograph: Joey Ivansco; Illustrations: Jim Stevenson

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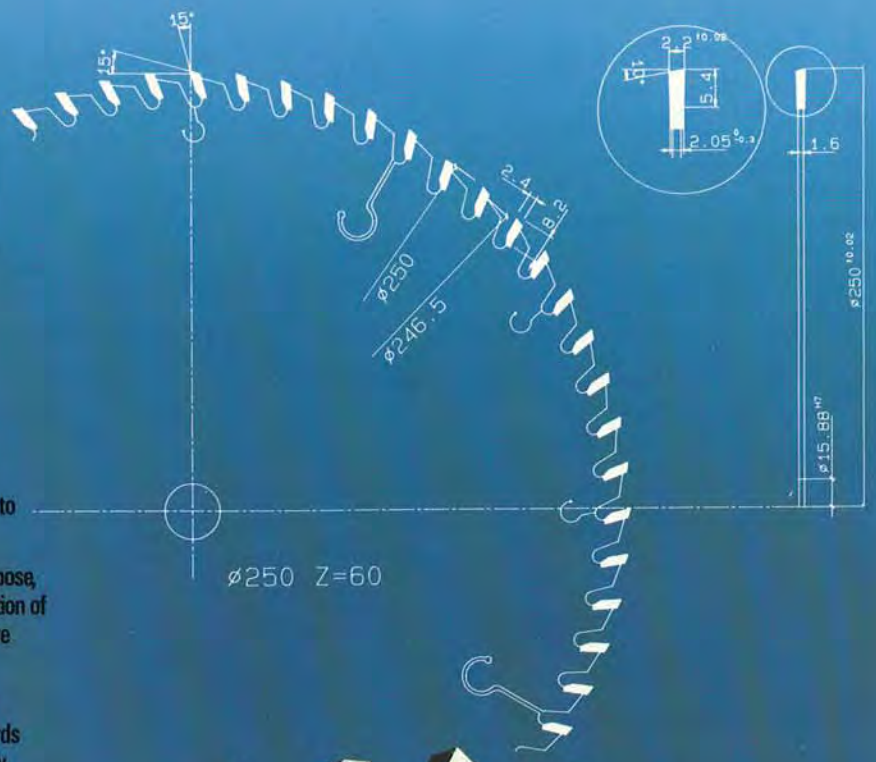

The Freud Difference

Superior Carbide. Some of the physical properties of carbide, elasticity, hardness and resistance to chemicals, can be changed to meet cutting requirements.

To ensure the blade you buy has the best carbide qualities for its purpose, Freud produces special blends at its own factory. Through a combination of robotic and computer monitoring, each batch is checked to assure purity and quality.

Advanced CAD System. The Computer-Aided Design System simulates actual cutting conditions in three dimensions and records the blade performance. This allows Freud engineers to electronically vary the material being cut and the blade's physical characteristics to develop saw blades that provide optimum cutting performance.

Laser Technology. A computer-controlled, 500-watt laser is used in the production of Freud cutting tools. The concentrated beam of light creates a perfectly round blade, produces shoulders identical in shape and size and precisely centers the arbor hole. In addition, expansion slots are strategically placed to allow for heat dissipation during brazing and blade body expansion during actual use.

Thin kerf blade compared to standard kerf blade

Freud thin kerf blades
Rip (left), Crosscut (right)

Freud Perfects the Thin Kerf Blade.

Using advanced technology, Freud's international team of European and North American engineers have perfected the thin kerf saw blade. They have eliminated misaligned teeth, poor blade body tensioning, carbide chipping and a variety of other problems common with some thin kerf blades.

The kerf on the Freud 10-inch crosscut blade, 28% thinner than the standard .126 inch kerf blade, reduces material loss when working with rare or expensive wood.

Freud's thin kerf blade also requires less energy to feed the material into the saw blade, eases the strain on your power tool and makes your work easier and safer.

Turn your under-powered saw into a real board cutting champion with Freud's thin kerf blade. Each thin tooth takes out less wood than the standard carbide blade, thus requiring less horsepower to produce equally good results. Also, the radial arm saw's aggressive self-feeding characteristics are virtually eliminated.

For the best value in advanced thin kerf blade technology, demand Freud.

Stock Number	Thin Kerf Rip	Kerf	Suggested Retail
LU87M008	8" x 22 x 5/8"	.086 inch	$49.00
LU87M009	9" x 22 x 5/8"	.094 inch	$54.00
LU87M010	10" x 24 x 5/8"	.094 inch	$56.90
Stock Number	**Thin Kerf Crosscut**	**Kerf**	**Suggested Retail**
LU88M008	8" x 48 x 5/8"	.082 inch	$59.90
LU88M009	9" x 54 x 5/8"	.090 inch	$63.90
LU88M010	10" x 60 x 5/8"	.090 inch	$69.90

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